State of California
The Resources Agency
DEPARTMENT OF WATER RESOURCES
Northern District

SUMMARY OF OPERATIONS

FOR

WATERMASTER SERVICE IN NORTHERN CALIFORNIA

1992 Season

OCTOBER 1993

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FOREWORD

This report describes the watermaster service provided by the Department of Water Resources to areas in Northern California during the 1992 irrigation season. Authority for its preparation and publication is stated in the California Water Code, Division 2, Part 4, Chapter 7.

This report presents information about 1992 watermaster service in two sections. The first section gives general introductory information about water rights, water supply, service areas, and watermaster duties. The second section describes the fifteen active service areas. Thirteen of these service areas are located in DWR's Northern District and are served by Northern District watermasters. The other two service areas, Indian Creek and Middle Fork Feather River, are located in DWR's Central District and are served by watermasters of the Division of Operations and Maintenance, Oroville Field Division. Each of these service area descriptions gives detailed information on the area, the basis of watermaster service, sources of water supply, methods of distribution, 1992 water distribution, and personnel used.

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INTRODUCTION

Purpose and Benefits

The main purpose of watermaster service is to distribute water according to established water rights. This is done by apportioning to the rightful users the available supplies in streams that have had water right determinations.

Distribution of water in watermaster service areas is the lawful duty of the Department of Water Resources as directed in Part 4 of Division 2 of the California Water Code. Under watermaster service, water right holders are assured that their rights are protected without their having to take legal action against other users.

A major benefit of watermaster service to water users and the State is that court litigation and violent conflict, which in the past happened often, are now rare. Also, available supplies of water are better used, as waste is reduced through careful management.

Because both the water right holders and the State receive benefits from watermaster service, the costs of performing the service are shared. The State general tax fund pays one-half of the cost of operating each service area and the water right holders in the service area pay the other half. Individual users' shares are determined in accordance with Article 3 of Chapter 7 of the above-mentioned Part 4 of Division 2 of the Water Code. Although this work is done as efficiently as possible, considerable public funds are needed to (1) maintain skilled representatives in the field during the dry months of the growing season, and (2) maintain administrative support at Department headquarters. Nevertheless, most clients find the benefits of fair, reliable, and comparatively worry-free distribution of water to be far superior to doing without State watermaster service.

Determination of Water Rights

Many of the streams under State watermaster service have had their water rights defined by the courts under one of three adjudication procedures. These judgments establish each holder's rights in terms of rate of diversion, season of use, point of diversion, and place of use. They also establish priorities whereby each holder's rights are ranked according to the rights of all other decreed holders. Under this system, all rights of any one priority must be fully satisfied before water can be diverted to holders of lower priority rights. The determinations of the courts are commonly called decrees.

Water rights decisions necessary for establishing watermaster service areas are accomplished by the following methods: (1) a statutory adjudication which defines all water rights on the stream; (2) a court adjudication which results when two or more parties have their water rights defined; and (3) a court reference whereby the State Water Resources Control Board makes an investigation and reports to the court regarding water rights of the parties involved.

Statutory Adjudication

The California Water Code (Sections 2500-2900) gives a procedure whereby water users of any stream may petition the SWRCB, Division of Water Rights, to make a legal determination of all water rights on that stream. If the Board finds that such a determination is in the best public interest, it proceeds with a legally binding decision. This results in a court decree that defines all water rights on the stream.

Figure 1 contains a location map of the service areas, the number of decreed holders, and the amounts of water rights for each area. Table 1 lists the water right Superior Court decrees and their type.

Court Adjudication

A less extensive method of defining water rights is the "court adjudication" procedure. This type of adjudication results when two or more parties involved in a water rights dispute seek a solution to their problem under civil law. A decision handed down in such a civil action determines only the water rights of the parties involved in the action and therefore does not necessarily define all water rights on the stream. As a result, serious conflicts sometimes arise between decreed water right holders and persons claiming longer-standing riparian or appropriative rights that were not specified in the decree.

Court Reference

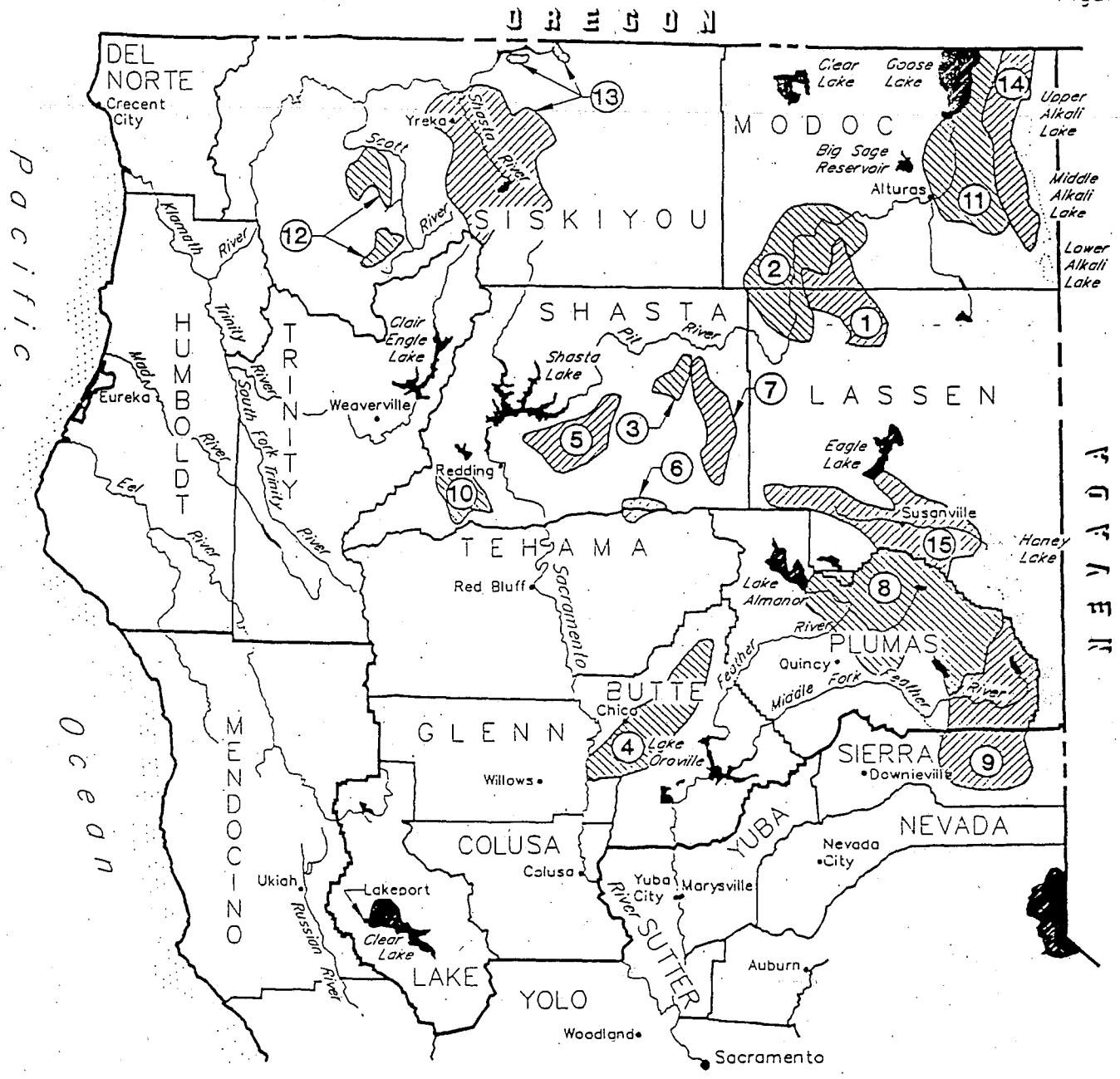
The "court reference" type of adjudication arises when a civil action, as discussed, is referred to SWRCB for a determination under authority contained in Sections 2000-2076 of the Water Code. The Board's report becomes the basis for the court's decision. As in court adjudications, a court referee determines only the water rights of the parties involved in the action.

Non-Judicial Decisions

A permit or "license to appropriate" can be issued by the SWRCB, or agreement can be reached by mutual consent of the water users involved.

Watermaster Service Areas

Figure 1



1992 Decreed Water Rights

Service Area	Number of Decreed Water Users	Total Decreed Water Rights ft3/s
1. Ash Creek	47	123.650
2. Big Valley	50	206.780
3. Burney Creek	11	33.090
4. Butte Creek	46	431.840
5. Cow Creek	99	56.562
6. Digger Creek	111	23.401
7. Hat Creek	87	159.710 1/
8. Indian Creek	49	96.715
9. M.F. Feather River	119	376.739
10. N.F. Cottonwood Creek	12	29.050
11. N.F. Pit River	105	216.475
12. Scott River	102	129.560
13. Shasta River	208	623.857 2/
14. Surprise Valley	199	400.970 3/
15. Susan River	228	354.099

1/ Average at Upper and Lower Rotation.

2/ Includes Willow Creek near Ager which is based on a percentage of flow.

3/ Includes Pine Creek near Alturas.

TABLE 1

WATERMASTER SERVICE AREAS, STREAM SYSTEMS

AND

SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION

Watermaster Service Area	Name of Stream System[a/]	County	Decree Number	Decree Date	Decree Type*	Date Watermaster Service Area Created	Remarks
Ash Creek	Ash Creek and Lassen	Modoc **	3670	10-27-47	CR	4-03-59	Included as part of Big Valley service area 1949 through 1958.
Big Valley	Pit River	Modoc ** and Lassen	6395	2-17-59	S	11-13-34	Service provided in accordance with recorded agreement in 1934. Service area operated under recorded agreement 1935 through 1958, and under decree since 1959. Service discontinued on December 31, 1981, and reactivated May 1, 1992.
Burney Creek	Burney Creek	Shasta	5111	1-30-26	CR	9-11-29	Service provided in accordance with decree since 1926.
Butte Creek	Butte Creek	Butte	18917	11-06-42	S	1-07-43	
Cow Creek[b/]	North Cow Creek	Shasta	5804	4-29-32	CR	10-17-32	
	Oak Run Creek	Shasta	5701	7-22-32	CR	10-17-32	
	Clover Creek	Shasta	6904	10-04-37	CR	1-21-38	
Digger Creek	Digger Creek	Shasta and Tehama **	2213	8-12-99	C	6-11-64	
			3214	5-27-13	C		
			3327	10-16-17	C		
			4570	2-24-27	C		
Hat Creek	Hat Creek	Shasta	5724	5-14-24	CR	9-11-29	Service provided in accordance with decree since 1924.
			7858	10-07-35	CR		
Indian Creek	Indian Creek	Plumas	4185	5-19-50	S	2-19-51	
Middle Fork Feather River	Middle Fork Feather River	Plumas ** and Sierra	3095	1-19-40	S	3-29-40	
North Fork Cottonwood Cr.	North Fork Cottonwood Cr.	Shasta	5479	6-09-20	CR	9-11-29	Service provided intermittently in the accordance with the decree since 1924.
North Fork Pit River	North Fork Pit River and all tributaries except Franklin Creek	Modoc	4074	12-14-39	S	12-18-39	All stream systems consolidated into North Fork Pit River service area 12-13-40.
	New Pine Creek	Modoc	2821	6-14-32	CR	6-22-32	
	Davis Creek	Modoc	2782	6-30-32	CR	7-13-32	
	Franklin Creek	Modoc	3118	9-08-33	CR	9-14-33	
	Cottonwood Creek	Modoc	2344	5-03-40	CR	12-13-40	
Scott River	French Creek	Siskiyou	14478	7-01-58	CR	11-19-68	French, Shackleford, and Wildcat Creek were combined in 1980 to form the Scott River service area. Sniktaw Creek was added on April 1, 1981, and Oro Fino Creek in July 1, 1984.
	Shackleford Creek	Siskiyou	13775	4-10-50	S	11-06-50	
	Wildcat Creek	Siskiyou	30662	1-16-80	S	5-01-80	
	Sniktaw Creek	Siskiyou	30662	1-16-80	S	4-01-81	
	Oro Fino Creek	Siskiyou	30662	1-16-80	S	7-01-84	
Shasta River	Shasta River	Siskiyou	7035	12-29-32	S	3-01-33	
	Willow Creek	Siskiyou	24482	4-28-72	C	6-22-72	
	Cold Creek	Siskiyou	29348	7-05-78	S	4-01-81	
Surprise Valley	Cedar Creek	Modoc	1206	5-22-01	C	6-19-26	All adjudicated stream systems in Surprise Valley were consolidated into the Surprise Valley service area on 1-10-39. Bidwell Creek was added on March 16, 1960. Service started on Cedar Creek in 1926 in accordance with the decree. Service was provided on Soldier and Owl Creeks in 1929 in accordance with the decrees by order of the court. Cottonwood Creek was added on 7-1-77.
			2343	2-15-23	C		
	Soldier Creek	Modoc	2405	11-28-28	CR	9-11-29	
	Owl Creek	Modoc	2410	4-29-29	CR	9-11-29	
	Emerson Creek	Modoc	2840	3-25-30	CR	4-01-29	
	Mill Creek	Modoc	3024	12-19-31	CR	12-30-31	
	Deep Creek	Modoc	3101	1-25-34	CR	12-29-34	
	Pine Creek near Cedarville	Modoc	3391	12-07-36	CR	1-13-37	
	Rader Creek	Modoc	3626	6-04-37	CR	6-12-37	
	Eagle Creek	Modoc	2304	4-05-26	C	1-10-39	
			3284	11-05-37	CR		
	Pine Creek near Alturas	Modoc	Agreement	11-22-23		1-12-35	Pine Creek was transferred from North Fork Pit River to Surprise Valley Watermaster serice Area in 1988.
	Cottonwood Creek	Modoc	6903	12-01-64	C	7-01-77	
	Bidwell Creek	Modoc	6420	1-13-60	S	3-16-60	
Susan River	Susan River	Lassen	4573	4-18-40	CR	11-10-41	
	Baxter Creek	Lassen	8174	12-15-55	S	2-16-56	
	Parker Creek	Lassen	8175	12-15-55	S	2-16-56	

* Explanation of type of decree:

C - Court adjudication (court makes determination from evidence submitted--no report of referee)
CR - Court reference (referred to State Water Resources Control Board for investigation and report)
S - Statutory adjudication (State Water Resources Control Board is petitioned by water users to make a determination of all water rights on a stream system)

** Decree entered by the Superior Court of this county.

a/ Major tributaries only; a complete listing is given in "Watermaster Service Areas and Stream Systems", page 6.

b/ Mainstem Cow Creek not in service area.

Watermaster Service Areas

Watermaster service is provided in areas where the rights have been defined by the superior court of the county, or by agreement, and where an unbiased, qualified person is needed to properly apportion the available water according to the established rights. The Director of DWR creates watermaster service areas where these conditions exist, following either a request by the users or an order by the superior court.

The first watermaster service areas were created in September 1929. Before then, some watermaster service was provided in accordance with the Water Commission Act of 1913. About 50 streams in Northern California are now under State watermaster service. The newest service areas were created in 1979.

The counties and principal water sources of the various service areas in Northern California are listed in Table 2.

Of these fifteen areas, thirteen are in the Department's Northern District and two are in the Central District, served by watermasters assigned to the Division of Operations and Maintenance, Oroville Field Division.

Description of Region

The service areas are mainly in the mountainous northeastern part of the State where the growing season varies between about 100 and 140 days. Meadow hay and alfalfa are the principal crops under irrigation, although much land is used exclusively for pasturing livestock. Much irrigation is still done by gravity systems, with water users diverting directly from the streams at one or more diversion points. However, pumped diversions and sprinkler irrigation systems are becoming popular in some areas.

Watermaster Responsibilities

To assure the proper distribution of water within the service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority according to established water rights.

Authority

To accomplish this, the watermaster gets authority both from the California Water Code and from provisions of pertinent court decrees or voluntary agreements to physically regulate the streams in the service area. The watermaster is further authorized to supervise the design, construction, operation, and maintenance of diversion dams, headgates, and measuring devices.

Each watermaster supervises water distribution at around 100 to 200 diversions in one or more service areas. The need for frequently checking and regulating these diversion points increases substantially in years of short water supply.

TABLE 2

WATERMASTER SERVICE AREAS AND STREAM SYSTEMS

Service Area	County	Principal Water Sources: MAJOR STREAM and Tributaries[a]	Principal Water Sources: Reservoirs and Nontributary Streams
Ash Creek	Lassen, Modoc	ASH CREEK Butte, Rush, and Willow Creeks	
Big Valley	Modoc, Lassen	PIT RIVER Ash Creek	Lower Roberts Reservoir
Burney Creek	Shasta	BURNEY CREEK	
Butte Creek	Butte	BUTTE CREEK	West Branch Feather River
Cow Creek	Shasta	COW CREEK[b] North Cow, Clover, Oak Run, and Cedar Creeks	
Digger Creek	Shasta, Tehama	DIGGER CREEK	
Hat Creek	Shasta	HAT CREEK	
Indian Creek	Plumas	INDIAN CREEK Lights Creek, Wolf Creek	
Middle Fork Feather River	Plumas, Sierra	MIDDLE FORK FEATHER RIVER Little Last Chance, Smithneck, Webber and Fletcher Creeks; Spring Channels; Westside Canal	Little Truckee River
North Fork Cottonwood Creek	Shasta	NORTH FORK COTTONWOOD CREEK	Rainbow Lake
North Fork Pit River	Modoc	NORTH FORK PIT RIVER Parker Creek	Cottonwood, Davis, and New Pine Creek
Scott River	Siskiyou	FRENCH CREEK Shackleford, Mill, Miners, Wildcat, Oro Fino, Sniktaw Creeks	Cliff and Campbell Lakes
Shasta River	Siskiyou	SHASTA RIVER Little Shasta River	Dwinnell Reservoir (Lake Shastina), Cold Creek, Willow Creek, Sacramento River
Surprise Valley	Modoc	NONE (All creeks listed at right are unconnected)	Bidwell, Mill, Soldier, Pine near Cedarville, Cedar, Deep, Cottonwood, Owl, Rader, Eagle, Emerson, and Pine Creek near Alturas
Susan River	Lassen	SUSAN RIVER Willow Creek	Lake Leavitt, Hog Flat, McCoy Flat Reservoirs; Baxter and Parker Creeks

[a] Major tributaries only.
[b] Mainstem Cow Creek not in service area.

Control Devices

Permanent measurement and control devices, which the State requires (Water Code Sections 4100-4104) at each property owner's main point of diversion, are constructed by the water users under supervision of the watermaster. Installation of accurate, easily set, and lockable structures is a continuing objective of watermaster service, since once they are built, conflicts among water users usually stop. Also, the watermaster's ability to check and set each diversion regularly is greatly helped by engineered and properly built structures.

Interpretation of Decrees

The watermaster is often called upon to make on-the-spot interpretations of various court decrees, agreements, etc. Since most of these documents were written more than 30 years ago, many situations have developed that were not initially considered. Therefore, watermasters must use sound, careful, and practical judgment in attempting to reach workable solutions to water disputes. To accomplish this, they must possess a good understanding of California water rights law.

Water Supply

Water supply in the watermaster service areas comes mainly from unregulated runoff of small streams. Peak runoff--snowmelt in most cases--occurs in the spring, with relatively small streamflow occurring in the summer and early fall. Additional supplies from storage reservoirs and ground water pumping are used in some areas to supplement natural streamflow, but State watermasters do not supervise the use of ground water in this part of the State.

In some service areas, the water supply must be predicted in advance to determine the date watermastering will begin and, to some extent, the work force needed. The DWR's Bulletin 120 series, "Water Conditions in California," is used to assist in these predictions.

Precipitation

The streamflow available for distribution is affected by total precipitation, amount of snowpack, air temperature, and the amount of rainfall received during the irrigation season. The latter is particularly important in the upper Pit River-Surprise Valley areas, where about 25 to 30 percent of the annual precipitation occurs normally in April, May, and June. Spring storms, which are normally accompanied by relatively cool temperatures, materially affect both the water supply and the demand. Temperatures in the spring affect the demand for water and the manner in which snowmelt runoff occurs. A hot, dry spring depletes the water supply very early, even in years of normal snowpack. A cold, wet spring can extend the supply well into the irrigation season, but cold temperatures retard the growth of crops and are not necessarily desirable.

Table 3 reports the quantity of precipitation at selected stations in the service areas during the 1991-92 water year. The seasonal precipitation gives an indication of the related water supply available for distribution, and provides a basis for comparing the current year's supply with a long-term average.

Table 4 shows the snowpack on April 1, 1992 on all snow courses, and the snowpack on May 1, 1992 on selected courses. This information comes from DWR's basic data files.

Streamflow

The general water supply available for diversion within each watermaster area is determined from stream gaging stations placed at key locations in the main stream channels. Several major stations are installed and maintained by DWR and the U. S. Geological Survey as part of a Federal-State program for collection of year-round streamflow records. In addition, several stream gaging stations are installed and operated by the watermasters during the irrigation season to provide supplemental information. Also, water stage recorders are often installed by watermasters in selected diversion ditches to further assist them in proper distribution of the various water right allotments.

Table 5 presents runoff data at selected stream gaging stations in or near the service areas.

TABLE 3

PRECIPITATION AT SELECTED STATIONS - 1991-92 SEASON
(Units in Inches)

Current Season
Long-term Average

Station	County	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Total	Percent of Mean
Fort Jones	Sisk.	0.66	2.81	1.55	1.40	1.67	0.89	1.63	0.38	2.35	0.76	0.00	0.08	14.18	63
R.S.		1.39	2.94	4.49	4.77	2.79	1.99	1.08	0.76	0.78	0.34	0.49	0.65	22.47	
Happy Camp	Sisk.	1.75	4.70	3.81	4.68	5.58	3.16	4.75	0.21	1.07	1.24	0.00	0.22	31.17	56
R.S.		3.67	7.91	10.90	12.18	7.78	6.51	2.78	1.45	0.61	0.25	0.54	1.09	55.67	
Yreka	Sisk.	0.81	2.52	1.41	0.79	1.07	0.29	0.83E	0.45	2.35	0.53	0.07	0.35	11.47	60
		1.25	2.34	3.83	3.68	2.17	1.80	0.89	0.77	0.85	0.40	0.63	0.59	19.20	
Redding, WSO	Shasta	1.93	1.27	5.00	3.03	10.15	3.41	1.91	0.03	1.66	T	T	0.00	28.39	72
		2.17	4.47	6.61	7.60	6.05	4.99	2.93	1.68	1.57	0.13	0.18	0.80	39.18	
Hat Creek	Shasta	0.46	1.99	1.01	0.53	1.66	1.47	0.52	0.18	0.47	0.11	0.00	0.00	8.40	45
P.H. #1		1.23	2.09	3.22	3.24	2.53	2.09	1.22	1.22	0.89	0.21	0.37	0.56	18.87	
Lookout 3WSW	Lassen	1.40	2.10	0.65	0.70	1.95	0.89	1.13	0.04	1.35	0.10	0.00	0.00	10.31	47
		1.31	3.23	3.38	3.44	2.44	2.70	1.44	1.31	1.02	0.37	0.51	0.82	21.97	
Alturas	Modoc	0.83	1.42	0.43	0.12	0.33	1.30	0.57	0.29	1.63	0.14	T	0.02	7.08	52
R.S.		0.94	1.31	1.53	1.67	1.23	1.35	1.00	1.21	2.17	0.31	0.43	0.48	13.63	
Jess Valley	Modoc	1.97	1.34	1.14	0.40	1.04	2.68E	1.06	0.93	2.47	0.14	0.25	0	13.42	75
		1.38	1.89	1.96	1.99	1.67	1.82	1.80	2.04	1.57	0.48	0.64	0.73	17.94	
Cedarville	Modoc	1.54	1.61	0.74	0.05	0.37	0.61	1.10	0.26	2.36	0.09	0.23	0.05	9.01	63
		1.17	1.61	2.70	2.02	1.36	1.33	1.02	1.11	0.83	0.37	0.38	0.48	14.38	
Susanville	Lassen	0.80	1.31	1.54	0.23	1.48	0.71	0.33	0.53	1.00	0.46	0.08	0	8.47	52
1WNW		1.30	1.81	2.60	2.93	2.41	1.95	0.75	0.78	0.69	0.34	0.31	0.44	16.31	
Greenville	Plumas	2.04	1.92	4.32	2.11	7.91	2.77	2.70E	0.60E	1.86	0.17	0.18	0	26.58	71
R.S.		2.37	5.23	5.99	6.71	5.84	5.20	2.54	1.51	0.80	0.26	0.37	0.75	37.57	
Sierraville	Sierra	3.09	2.60	1.91	0.37	2.50	1.05	0.52	0.47	0.76	0.07	0.96	0.42	14.72	55
R.S.		1.97	2.99	4.73	5.46	3.75	2.90	1.56	1.35	0.60	0.32	0.42	0.52	26.57	
Vinton 5SW	Plumas	0.80	1.47	0.72	0.20	1.27	1.10	0.34	0.10	0.59	0	0.61	0.06	7.26	57
		0.34	1.75	1.93	2.02	1.72	1.49	0.78	0.94	0.61	0.34	0.36	0.46	12.74	

NOTE: Current season above line; long-term averages below line.

E - Estimated
T - Trace

TABLE 4

SNOWPACK AS OF APRIL 1 AND MAY 1, 1992, AT REPRESENTATIVE SNOW COURSES

Watermaster Service Areas	Snow Course* Group Related to Each Service Area	Calif. I. D. No.	Elevation (in feet)	WATER CONTENT OF SNOW				
				April 1 Average (in inches)	April 1,1992		May 1, 1992**	
					In inches	In Percent of April 1 Average	In inches	In Percent of April 1 Average
Ash Creek	Blue Lake Ranch	28	6,800	12.6	2.6	21		
Burney Creek	Thousand Lakes	33	6,500	38.1	15.0	39	0.6	1
Butte Creek	Humbug Summit	60	4,850	12.1	9.7	80	0.0	0
	Silver Lake Meadows	45	6,450	30.5	16.1	53	0.0	0
Cow Creek	New Manzanita Lake	343	5,900	8.1	1.6	20		
Digger Creek	Burney Springs	41	4,700	2.8	0.0	0		
Hat Creek	New Manzanita Lake	343	5,900	8.1	1.6	20		
Indian Creek	Independence Lake	86	8,450	41.3	23.6	57	17.6	43
Middle Fork Feather River	Rowland Creek	280	6,700	18.5	4.7	25	0.0	0
	Yuba Pass	74	6,700	31.9	9.5	30	0.0	0
	Mount Dyer No. 1	48	7,100	25.5	14.9	58	3.2	12
North Fork Pit River	Cedar Pass	30	7,100	17.2	6.2	36		
Scott River	Middle Boulder No. 1	5	6,600	31.5	33.5	106	13.8	44
Shasta River	Little Shasta	2	6,200	20.6	17.6	85		
	Parks Creek	1	6,700	36.6	22.6	62		
South Fork Pit River	Adin Mountain	35	6,350	13.6	4.8	35	0.0	0

* Snow courses are listed in order of elevation with each geographical group of watermaster areas.
** Data collected only at courses listed.

TABLE 5

1991-92 RUNOFF AT SELECTED STATIONS
(Acre-Feet)

	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Annual Total	Long Term Average	Percent of Average
Bidwell Creek near Fort Bidwell	206	274	309	260	261	516	1,113	661	223	167	74	64	4,128	18,000	23
Burney Creek at Burney	428	653	783	805	1,845	1,666	1,557	694	471	392	326	319	9,939	57,000	17
Butte Creek near Chico	4,040	4,630	6,540	8,960	37,230	31,100	24,040	15,140	8,300	7,750	5,250	3,090	156,100	297,800	52
Hat Creek near Hat Creek	5,750	5,680	5,880	5,790	5,240	5,230	5,940	7,160	5,730	5,400	5,290	5,020	68,120	103,600	66
Pit River near Canby	1,990	5,740	4,720	3,980	3,340	4,580	277	142	210	621	57	58	25,720	181,800	14
Scott River near Fort Jones	1,080	2,580	8,600	7,550	22,310	23,900	48,210	22,970	4,840	2,950	483	1,700	147,000	478,200	31
Shasta River near Yreka	5,780	8,990	9,670	9,840	8,930	7,610	1,930	1,510	1,620	1,550	758	1,940	60,130	136,200	44
Susan River at Susanville	243	499	570	596	1,420	1,690	2,520	323	126	85	81	95	8,250	67,090	12

SERVICE AREA DESCRIPTIONS AND 1992 WATER SUPPLY STATISTICS

This portion of the report consists of fifteen sections, one for each service area active in 1992, presented in alphabetical order.

Each of these sections presents a description of the particular service area, including location, geography, and general characteristics. Following this is a section entitled "Basis of Service," which includes such data as the case number, date, type of decrees, a brief summary of the decree or agreement that defines the water rights, the date the service area was created, and other related information.

These service area descriptions also give data on the water supply, methods of distribution, significant events of the watermaster season, and daily streamflow records. The listings of water right holders are updated as of March 1 each year from County Assessors' records.

As in previous years, watermaster service was activated on different dates in the various areas depending upon the streamflow conditions, the ranchers' needs for the water, or, as on some streams, the terms of the decrees. Service was continued in all areas through the growing season as long as needed.

The date service was started and ended in each service area and the name of the watermaster in charge are listed on Table 6.

TABLE 6

1992 SERVICE DATES AND WATERMASTERS

Service Area	Service Dates Began	Service Dates End	Watermaster
Ash Creek	April 1	April 19	John P. Clements
	April 20	September 30	George M. Fitzmorris
Big Valley	May 1	September 30	John P. Clements
Burney Creek	May 1	September 30	John P. Clements
Butte Creek	April 1	October 15	John A. Nolan
Cow Creek	May 1	October 30	John A. Nolan
Digger Creek	June 1	September 30	John A. Nolan
Hat Creek	May 1	October 28	John P. Clements
Indian Creek	April 2	October 1	Ralph D. Howell
M. F. Feather River	March 15	April 21	Conrad L. Lahr
	April 22	September 30	Charles D. Hand
N. F. Cottonwood Creek	June 1	September 30	John A. Nolan
N. F. Pit River	April 1	April 19	John P. Clements
	April 20	September 30	George M. Fitzmorris
Scott River	April 1	September 30	Keithal B. Dick
	April 15	September 30	Lester L. Lighthall
Shasta River	April 1	September 30	Keithal B. Dick
	April 15	September 30	Lester L. Lighthall
Surprise Valley	March 19	September 30	Kevin L. Dossey
Susan River	March 1	November 1	Virgil D. Buechler

ASH CREEK WATERMASTER SERVICE AREA

The Ash Creek service area is in Modoc and Lassen counties near the town of Adin, about 100 miles northeast of Redding via Highway 299E. The major sources of water for the service area are Ash Creek and three tributaries, Willow, Rush and Butte creeks. Ash Creek rises in Ash Valley in the southeastern part of the service area, and flows northwesterly about 18 miles to its confluence with Rush Creek, then southwesterly to the town of Adin, and then westerly to Ash Creek Swamp and Pit River. Butte and Willow creeks head in the mountains to the east and flow northwesterly into Big Valley. Butte Creek meets Ash Creek near the head of the Valley at Adin. Willow Creek flows into Ash Creek about 3 miles farther west, near the head of Ash Creek Swamp. The valley floor elevation in this vicinity is about 4,200 feet.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 3670, Modoc County Superior Court, dated October 27, 1947. From 1949 through 1958, Ash Creek was included as a part of Big Valley watermaster service area. The Ash Creek service area has been served separately since April 3, 1959.

About 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The rest are along the upstream tributaries and in Ash Valley, east of Adin. The part of Big Valley served is about 10 miles long by 6 miles wide, extending from Adin to the confluence of Ash Creek and the Pit River.

The Ash Creek Decree establishes the number of priority classes on the individual streams within the service area as follows: Ash Creek - five, Willow Creek - four, Rush Creek - one, and Butte Creek - two. Each of these streams is independently regulated.

Water Supply

The water supply for Ash and Rush creeks comes mainly from snowmelt, since most of the watershed is between 5,000 and 6,000 feet in elevation. Willow Creek and Butte Creek get much of their water from springs. These creeks normally have enough water to satisfy demands until about June 1, after which the supply decreases rapidly. By the end of June, Ash Creek normally has receded to about 20 cubic feet per second (cfs), and Butte Creek to less than 1 cfs. The flow of these creeks then remains nearly constant for the rest of the season. Records of the daily mean discharge of stream gaging station, Ash Creek at Adin, is presented in Table 7. The flow in Willow Creek above Diversion No. 92 and 93 is presented in Table 8.

Method of Distribution

Irrigation from Ash Creek and its tributaries uses numerous small dams to divert flow into systems of ditches. The ditches deliver the water to the

ASH CREEK WATERMASTER SERVICE AREA

TABLE 7

1992 Daily Mean Discharge
(In cubic feet per second)

ASH CREEK AT ADIN

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	27	26	14	14	22	23	7.5
2	27	25	12	17	20	21	6.5
3	27	25	13	21	19	19	7.6
4	26	25	13	18	18	18	8.3
5	27	24	13	18	19	19	9.4
6	30	24	13	18	21	19	8.0
7	61	22	12	14	17	19	8.9
8	84	24	13	9.9	14	19	11
9	63	23	12	8.0	13	19	12
10	43	25	12	8.0	15	19	13
11	37	24	12	8.7	17	18	14
12	34	25	10	13	17	18	15
13	31	26	9.6	16	17	22	14
14	31	24	9.4	17	16	21	15
15	30	22	9.5	16	16	21	14
16	30	23	11	16	16	21	14
17	32	25	14	16	14	22	14
18	30	23	9.7	18	16	20	15
19	29	22	9.0	18	18	18	14
20	28	22	12	16	18	15	13
21	27	22	14	16	22	16	14
22	27	21	15	15	23	14	15
23	28	22	14	14	20	17	15
24	28	21	12	15	19	18	14
25	27	20	13	18	19	17	14
26	27	21	13	25	18	16	14
27	26	21	13	18	18	8.9	14
28	25	21	8.9	14	18	8.5	15
29	25	20	11	16	18	11	15
30	26	20	16	22	19	12	16
31	26		15		18	12	
MEAN	32.9	22.9	12.2	15.8	17.9	17.5	12.7
AC-FT	2021	1365	750	939	1101	1074	754

TABLE 8

1992 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK ABOVE DIVERSIONS 92 AND 93

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		5.4[1/]	5.4	4.9	5.1	3.9	4.1
2		5.4	5.4	4.6	4.9	4.1	4.4
3		5.4	5.6	4.6	4.6	4.1	4.6
4		5.1	5.6	4.4	4.6	4.4	4.6
5		5.1	5.6	4.6	4.6	4.4	4.6
6		5.4	5.4	4.6	4.9	4.1	4.6
7		5.6	5.4	4.6	4.6	4.4	4.6
8		5.6	5.4	4.4	4.6	4.4	4.6
9		5.9	5.1	4.6	4.4	4.4	4.6
10		6.1	5.4	4.4	4.4	4.1	4.6
11		5.9	5.1	4.6	4.4	3.9	4.6
12		6.1	5.1	4.9	4.6	4.1	4.6
13		6.1	5.1	4.9	4.4	4.6	4.4
14		5.9	5.1	4.9	4.4	4.4	4.4
15		5.9	5.1	5.1	4.4	4.4	4.4
16		5.9	4.9	5.1	4.6	4.4	4.4
17		6.1	5.1	4.9	4.9	4.1	4.1
18		5.9	4.9	4.9	4.9	4.1	4.1
19		5.9	5.1	4.9	4.6	4.1	4.4
20		5.9	5.4	4.9	4.4	4.1	4.4
21		5.6	5.4	4.6	4.4	3.9	4.4
22		5.6	5.4	4.6	4.1	4.1	4.4
23		5.6	5.4	4.4	4.1	4.4	4.4
24		5.6	5.1	4.6	4.4	4.4	4.6
25		5.4	4.9	4.9	4.1	4.4	4.6
26		5.6	5.1	4.6	4.1	4.4	4.6
27		5.4	4.9	4.4	4.1	4.1	4.6
28		5.6	4.9	4.6	4.1	3.9	4.6
29		5.4	4.9	5.1	4.1	4.1	4.6
30		5.6	4.6	5.1	3.9	4.4	4.6
31			4.6		3.9	4.4	
MEAN		5.7	5.2	4.7	4.4	4.2	4.5
AC-FT		337	318	281	273	260	267

[1/] No record before April 1.

various fields for spreading. Wild flooding is the method most used, but some ranchers have checks and ditches and some use pumps to operate sprinklers or to lift water to higher spreading ditches. In some cases, runoff water is captured and reused before it returns to the stream.

1992 Distribution

Watermaster service began in the Ash Creek watermaster service area on April 1 and continued until September 30. John P. Clements, Associate Engineer, Water Resources, served as watermaster from April 1 through 19. George M. Fitzmorris, Assistant Engineer, Water Resources, served as watermaster from April 20 through September 30.

Ash Creek

Full first and second priority water and about one-half of third priority water was available during April of this season. The flow decreased to second priority during May, but increased to one-half of third priority for the remainder of the season.

Public Utility water, as defined in Paragraph 18 of Ash Creek Decree No. 3670, furnished to the Akers Ranch this season was as follows:

June 20 through July 4	37 acre-feet
August 1 through August 15	66 acre-feet
September 1 through September 15	107 acre-feet

Willow Creek

The maximum flow in Willow Creek this irrigation season was 6.1 cfs. No third or fourth priority water was available this season. The flow in the creek decreased to about 50 percent of the second priority by early June and remained fairly uniform for the remainder of the season.

Rush Creek

Full priority water was available in Rush Creek only during April of this season. The flow then decreased rapidly to about one-half of full priority by early May and then to one-third of full priority my mid-June. The flow then remained fairly level for the rest of the season.

Butte Creek

Full priority flow was available in Butte Creek only during April of this season. The flow then decreased to about 50 percent of first priority and remained fairly constant for the rest of the season.

BIG VALLEY WATERMASTER SERVICE AREA

The Big Valley service area is in Modoc and Lassen counties in the vicinity of the towns of Lookout and Bieber, about 90 miles northeast of Redding via State Route 299.

The Pit River is the major source of water regulated by the watermaster. The river enters the valley north of the town of Lookout and flows southerly through the western part of the valley and out at the southern end. The major area of use is along approximately 13 miles of valley floor, up to 6 miles wide, along the Pit River at an approximate elevation of 4,200 feet.

Basis of Service

The Big Valley watermaster service area was created on November 13, 1934, and service began with the 1935 season, operating under an agreement to determine water rights recorded in 1934. The water rights in this service area were set forth in Decree No. 6395, Modoc County Superior Court, a statutory decree, dated February 17, 1959.

Distributing the water on a continuous flow basis, as provided by the decree, has proven impracticable to the users who employ wild flooding or border irrigation practices because of the wide variation of flows. By mutual agreement, an alternative procedure allowing each user a definite amount of water in acre-feet for each cubic foot per second of right allocated by the decree has been adopted. The watermaster estimates the probable amount of water available for the next 15 to 30 days and chooses the appropriate ac-ft/cfs ratio with a view to completing the rotation through the valley in not more than 30 days.

The irrigators using pumps and sprinklers have elected to receive their water on a more or less continuous flow basis. Over the years, different ways have been employed to insure that applications of small amounts over extended periods result in no advantage over the flooders who use large amounts for very short periods.

Water Supply

The flow in the Pit River at the head of Big Valley is mostly from direct runoff, mainly snowmelt, and return flow is mostly from irrigation water released from West Valley above South Fork Pit River and Big Sage Reservoirs above Hot Springs Irrigation District.

The available water supply in the Pit River as it flows through Big Valley used to be adequate to satisfy all demands until about June 1. The irrigation practices in Hot Springs Irrigation District, about 20 miles upstream from Big Valley, have a significant effect on the available water supply in Big Valley. Water users in Hot Springs Irrigation District divert most of the flow of the

Pit River for two- or three-week periods. In recent years, Hot Springs Irrigation District has improved the use and coordinated the distribution of their water, so releases from their system are less than they were 10 years ago. However, Big Valley Irrigation District water users are unable to keep much stock water in August and September.

Several users, who irrigate crops by sprinkling, have drilled wells to supplement their water supply. Some of these are several miles upstream from the place of use, and the Pit River is used to convey it downstream to where it is pumped out. The users who irrigate by flooding have not changed nor improved their practices.

Roberts Reservoir, which stores runoff of a minor tributary to the Pit River near the upper end of Big Valley above Lookout, serves as a supplemental source of water to those users in the area who are members of the Big Valley Mutual Water Company. Water from this reservoir is released into the Pit River and distributed to members of the water company along with the natural flow to which they are entitled.

The daily mean discharge of the Pit River near Canby stream gaging station is presented in Table 9.

Method of Distribution

Most water users in the Big Valley service area irrigate on a rotation schedule, either by wild flooding or by checks and borders. Large flashboard dams placed in the channel make it possible to use the large heads of water characteristic of the supply in the area. In addition, some pumps are used for diversion, both in ditches and directly into sprinkler systems. The ranches which irrigate by wild flooding must use large heads of water in order to cover unleveled or high ground. Some of the runoff is recaptured for use by downstream lands.

1992 Distribution

Watermaster service in Big Valley began on May 1 and continued through September 30, with John P. Clements, Associate Engineer, as watermaster.

The water supply from the Pit River for the Big Valley area during the April through September irrigation season of 1,400 acre-feet was the least that has occurred since the beginning of record of the Pit River gaging station at Canby in 1932. During the watermaster season of May through September, the entire flow of the Pit River at Canby was used to supply stockwater to the various ditches and sloughs. No water was available for irrigation.

About 1,600 acre-feet was imported to the Pit River from ground water wells and surface water reservoirs and pumped from the river to irrigate alfalfa fields. The measurement of the import water and its diversion was accomplished by various methods including weirs, flow meters, and pump kilowatt-hour usage.

BIG VALLEY WATERMASTER SERVICE AREA

TABLE 9

1992 Daily Mean Discharge
(In cubic feet per second)

PIT RIVER NEAR CANBY[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	67	36	0.5	2.3	77	1.5	0.7
2	58	23	0.5	2.0	55	1.4	0.7
3	56	15	0.6	1.9	32	2.1	0.8
4	57	14	0.6	2.5	28	2.4	0.8
5	60	5.4	0.6	1.9	23	1.5	0.8
6	63	5.1	1.0	2.6	19	0.9	0.8
7	83	3.2	0.9	2.0	19	1.0	0.9
8	116	2.9	1.2	1.3	14	1.4	0.8
9	131	2.7	0.9	2.2	11	1.3	0.7
10	128	2.8	1.5	2.1	8.1	1.3	0.8
11	113	2.7	2.0	1.2	5.1	1.0	0.8
12	99	2.7	5.4	1.0	2.7	0.7	0.8
13	92	2.9	10	1.4	0.9	0.7	1.0
14	84	2.7	4.4	4.1	0.6	0.7	0.8
15	81	2.5	6.0	3.3	0.6	0.6	0.8
16	82	2.3	5.2	3.3	0.4	0.6	0.8
17	74	2.2	7.2	3.0	0.4	0.6	1.3
18	75	2.0	4.0	1.8	0.3	0.6	1.3
19	79	1.5	1.5	1.3	0.3	0.6	1.7
20	77	1.0	1.7	2.6	0.3	0.6	1.1
21	63	0.8	2.1	3.5	0.3	0.6	1.3
22	62	0.8	2.1	4.2	0.3	0.6	1.5
23	62	0.8	2.5	4.6	0.3	0.6	1.3
24	64	0.8	1.4	4.4	0.3	0.6	0.9
25	65	0.7	0.8	7.7	0.3	0.6	1.6
26	64	0.7	0.8	4.1	0.3	0.7	1.0
27	62	0.7	0.7	3.7	0.3	0.7	0.8
28	57	0.7	0.8	3.8	0.5	0.7	0.7
29	47	0.6	0.6	8.1	9.7	0.7	0.8
30	46	0.5	0.6	18	1.7	0.7	1.0
31	44		3.8		1.2	0.7	
MEAN	74.5	4.6	2.3	3.5	10.1	0.9	1.0
AC-FT	4580	277	142	210	621	57	58

[1/] USGS station.

BURNEY CREEK WATERMASTER SERVICE AREA

The Burney Creek service area is in eastern Shasta County above and below the town of Burney. The source of water for this service area is Burney Creek, which enters the southern part of the service area and flows through Burney in a northerly direction to the Pit River. The part of the valley served by this stream is about 11 miles long and 2 miles wide and extends both north and south of Burney.

Basis of Service

The rights on this creek system were determined by a court reference and set forth in Decree No. 5111, Shasta County Superior Court, dated January 30, 1926. Watermaster service was provided on the creek from 1926 to 1929 under the Water Commission Act of 1913. The present service area was created on September 11, 1929.

The Burney Creek decree sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis (one priority class plus surplus allotments), which is now normal practice. The water allotted to the Greer-Cornaz Ditch is distributed according to supplemental court decrees.

Water Supply

The water supply for Burney Creek comes from springs and snowmelt. Most of the watershed lies between the elevations of 4,000 and 7,500 on the northwest slopes of Burney Mountain. The creek normally has enough water for all demands until about the middle of June. The supply then gradually decreases until the end of July. For the rest of the irrigation season, runoff from perennial springs keeps the flow nearly constant at about 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 10. The stream gaging station on Burney Creek is downstream from four points of diversion, so the records do not show all of the available water supply of the creek.

Method of Distribution

Water is diverted from Burney Creek, in most cases, by means of low diversion dams into ditches that convey it to the individual users. Some users are still using flood irrigation, while some of the lower users are pressurizing the water with low lift pumps and sprinkler irrigation.

BURNEY CREEK WATERMASTER SERVICE AREA

TABLE 10

1992 Daily Mean Discharge
(In cubic feet per second)

BURNEY CREEK NEAR BURNEY

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	30	26	18	7.4	11	5.6	5.0
2	30	25	16	7.3	8.5	5.6	5.1
3	28	25	15	7.2	6.8	5.6	4.9
4	28	26	15	7.1	6.8	5.5	4.9
5	38	24	14	7.1	6.9	5.5	5.0
6	41	20	14	6.8	6.8	5.7	5.1
7	33	19	13	6.8	6.6	5.8	5.2
8	29	19	13	6.7	6.6	5.9	5.2
9	25	19	12	6.5	6.6	6.1	5.2
10	23	25	12	6.7	6.5	5.2	5.2
11	22	25	12	8.0	6.6	4.6	5.3
12	21	52	12	8.7	6.7	4.6	5.2
13	21	44	12	9.5	6.5	4.7	5.4
14	22	33	12	10	5.9	4.9	5.6
15	29	29	11	9.2	5.8	5.2	5.6
16	39	30	11	8.3	5.9	5.3	5.6
17	40	48	11	8.4	6.0	5.1	5.4
18	32	33	9.7	8.2	5.9	5.0	5.2
19	27	29	10	7.5	5.6	4.9	5.2
20	25	26	11	7.1	5.8	4.9	5.2
21	24	25	10	6.8	6.0	5.0	5.2
22	23	23	9.7	6.7	6.1	5.4	5.2
23	24	22	9.3	6.8	6.1	5.8	5.2
24	23	21	9.0	6.8	6.1	6.0	5.5
25	23	20	8.8	6.6	5.9	6.0	5.8
26	22	20	8.7	6.5	6.0	5.5	6.1
27	23	20	8.6	7.8	5.6	5.2	5.9
28	21	19	8.5	9.8	5.5	5.1	5.9
29	23	19	8.1	13	5.5	5.0	5.9
30	25	19	8.0	12	5.5	4.8	5.6
31	26		7.7		5.5	4.9	
MEAN	27.1	26.2	11.3	7.9	6.4	5.3	5.4
AC-FT	1666	1557	694	471	392	326	319

1992 Distribution

Watermaster service on Burney Creek began on May 1 and continued through September 30, with John P. Clements, Associate Engineer, Water Resources, as watermaster.

On May 1, only 80 percent of first priority water rights was available for diversion. The flow steadily decreased thereafter, and by June 1, only 60 percent was available. The flow continued to decrease and by July 15, only 40 percent was available but remained stable for the remainder of the year.

BUTTE CREEK WATERMASTER SERVICE AREA

The Butte Creek service area is in Butte County a few miles southeast of the City of Chico. The watermaster service area runs about 11 miles along Butte Creek, starting about 4 miles east of Chico and running downstream to the crossing of the Western Canal. It contains about 20,000 acres of valley floor lands at an average elevation of 150 feet.

Basis of Service

The rights on this stream system were determined by a statutory adjudication and set forth in Decree No. 18917, Butte County Superior Court, dated November 6, 1942. The Butte Creek watermaster service area was created on January 7, 1943.

The Butte Creek decree established three priority classes for summer use under Schedule 7, a surplus class inferior to the above rights, and a special class for Hamlin Slough. Schedule 3 of the decree defines the rights for rediversion (Diversion 50) of foreign water delivered into Butte Creek from the West Branch of the Feather River.

On September 18, 1969, the Water Resources Control Board granted permits for the following applications to take water from Butte Creek: application 22321, Gorrill Land Company; 22534, Garrison Patrick; and 22564, Louis C. Camenzind, Jr. These appropriative rights are also under control of the watermaster.

Water Supply

Butte Creek, the major source of water, drains about 150 square miles of the western slope of the Sierra Nevada in the northeasterly part of Butte County above the watermaster service area. The highest elevation in the watershed is about 7,000 feet.

Normally, snowmelt produces sustained high flows in the creek until about the end of June, after which perennial springs above Diversion 50 continue to produce flows of more than 40 cfs. Additional water is imported for distribution from the West Branch Feather River by means of the Hendricks (Toadtown) Canal through De Sabla Reservoir and Powerhouse into Butte Creek.

Records of the daily mean discharge at stream gaging stations in the Butte Creek service area are presented in Tables 11, 12, and 13.

Method of Distribution

Water is diverted from Butte Creek by pumping and by gravity diversions. Parrott Investment Company, M & T, Inc., Dayton Mutual Water Company, and Durham Mutual Water Company divert relatively large amounts of water by gravity into ditches leading to their individual distribution systems. Various methods of irrigation are in general practice, including contour

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 11

1992 Daily Mean Discharge
(In cubic feet per second)

BUTTE CREEK NEAR CHICO[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	425	380	324	157	157	124	51
2	410	383	310	158	135	124	50
3	392	379	302	168	123	82	50
4	386	380	295	164	115	76	60
5	718	367	293	172	110	76	51
6	870	349	289	161	104	75	48
7	729	339	286	135	103	132	48
8	612	336	282	146	117	142	49
9	526	337	274	155	117	140	48
10	469	378	264	136	116	140	49
11	440	387	258	131	122	139	51
12	419	567	255	136	125	136	51
13	401	618	250	141	124	133	49
14	415	491	246	138	121	129	49
15	505	444	244	167	118	122	50
16	895	420	241	171	118	123	49
17	860	561	238	141	112	70	49
18	681	524	239	128	125	50	54
19	576	455	259	121	125	48	56
20	516	428	268	115	127	48	57
21	481	422	260	108	131	48	54
22	459	400	238	105	131	49	54
23	448	377	229	102	146	52	53
24	440	358	223	105	143	48	54
25	380	348	201	105	142	45	54
26	376	345	194	102	140	46	53
27	376	334	180	98	137	49	53
28	369	333	174	98	135	49	54
29	370	339	173	163	130	50	57
30	365	342	177	256	129	52	53
31	370		166		127	51	
MEAN	506	404	246	139	126	85.4	51.9
AC-FT	31100	24040	15140	8300	7750	5250	3090

[1/] USGS station.

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 12

1992 Daily Mean Discharge
(In cubic feet per second)

BUTTE CREEK NEAR DURHAM

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	353	324	176				
2	343	338	151				
3	313	336	142				
4	299	335	137				
5	670	322	122				
6	976	306	108				
7	724	289	109				
8	605	283	99				
9	498	282	86				
10	419	314	96				
11	386	319	88				
12	363	479	77				
13	344	612	73				
14	358	476	63				
15	444	392	54				
16	907	386	54				
17	897	531	51				
18	669	519	1/				
19	547	449					
20	475	420					
21	421	419					
22	388	401					
23	366	381					
24	352	345					
25	368	297					
26	360	289					
27	355	285					
28	351	254					
29	325	229					
30	321	218					
31	318						
MEAN	468	361	99.2				
AC-FT	28790	21480	3344				

1/ May 18 to September 30 no record due to a beaver dam affecting flow.

BUTTE CREEK WATERMASTER SERVICE AREA

TABLE 13

1992 Daily Mean Discharge
(In cubic feet per second)

TOADTOWN CANAL ABOVE BUTTE CANAL

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		119[1/]	115	62	60	53	0.0
2		118	115	60	55	41	0.0
3		117	115	58	50	26	0.0
4		117	114	53	45	24	0.0
5		118	113	48	44	24	0.0
6		118	113	47	43	23	0.0
7		118	114	49	42	83	0.0
8		118	113	46	54	83	0.0
9		118	114	45	54	82	0.0
10		118	114	43	54	79	0.0
11		118	115	45	54	79	0.0
12		118	114	40	55	79	0.0
13		118	114	46	55	76	0.0
14		118	117	45	53	67	0.0
15		118	116	71	52	66	0.0
16		118	116	65	53	66	0.0
17		118	117	55	49	0	0.0
18		119	117	50	61	0	8.0
19		119	117	45	63	0	9.0
20		118	118	44	63	0	8.0
21		117	119	40	60	0	3.0
22		118	117	35	60	0	4.0
23		118	104	30	74	0	5.0
24		118	93	37	71	0	5.0
25		117	89	40	71	0	6.0
26		116	83	39	71	0	5.0
27		115	72	38	71	0	4.0
28		114	69	35	71	0	5.0
29		115	68	92	70	0	5.0
30		115	67	99	70	0	5.0
31			65		67	0	
MEAN		117	104	50.1	58.5	30.7	2.4
AC-FT		6990	6440	2979	3600	1886	143

[1/] No record before April 1.

checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The use of sprinklers has increased in the past few years, especially for orchards.

1992 Distribution

Watermaster service began April 1 in the Butte Creek service area and continued until October 15 with John A. Nolan, Water Resources Engineering Associate, as watermaster.

The water supply for the 1992 irrigation season was below normal. The appropriative rights that are in addition to the Butte Creek decree were partially filled until late May, at which time most of the rice fields were flooded. During the first week in July the Rancho Esquon closed its diversion gates for the remainder of the season and irrigated with well water for the balance of the season. The natural flow of Butte Creek reached a seasonal low of 70 percent of the first priority allotments by mid-August.

COW CREEK WATERMASTER SERVICE AREA

The Cow Creek service area is in central Shasta County in the foothills east of Redding. Water for this service area comes from three major creek systems. They are North Cow Creek (sometimes referred to as Little Cow Creek), Oak Run Creek, and Clover Creek. These creeks flow westerly to their confluence in the Millville-Palo Cedro area, then south to the Sacramento River east of the City of Anderson. The service area is generally a narrow strip of land on both sides of each of these creeks. In some cases, water is exported from one creek to the other.

Basis of Service

The water rights on each of these creek systems were determined by court references and set forth in separate decrees. Water rights for these creeks were set forth by Shasta County Superior Court decrees as follows:

Creek	Decree No.	Date
North Cow	5804	April 29, 1932
Oak Run	5701	July 22, 1932
Clover	6904	October 4, 1937

The North Cow Creek decree which includes Cedar Creek, sets forth a rotation schedule of distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis, which is now normal practice. Only one priority allotment was provided in each of the Cow Creek service area decrees, except for the Oak Run Creek decree, which contains a surplus allotment.

The Cow Creek watermaster service area was originally created on October 17, 1932, including North Cow Creek and Oak Run Creek water rights. On January 21, 1938, the service area was expanded to include the Clover Creek rights.

Water Supply

Water for this service area comes mostly from springs and seepage, with some early snowmelt runoff. The watershed varies in elevation from 500 to 5,000 feet and consists mainly of low, brushy hills that do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter normally produce substantial seepage and springs that flow through the irrigation season. The creeks normally have sufficient water to supply all demands until late July. The supply then gradually decreases to an average of about 60 to 70 percent of allotments by around mid-September.

The daily mean discharge of North Cow Creek near Ingot is presented in Table 14. The stream gaging station on North Cow Creek is downstream of

COW CREEK WATERMASTER SERVICE AREA

TABLE 14

1992 Daily Mean Discharge
(In cubic feet per second)

NORTH COW CREEK NEAR INGOT

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1							
2							
3				14.0			
4							
5							
6							
7							
8							
9							
10							
11							
12			16.6				
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26					6.5		
27							
28							
29							
30							
31							
MEAN							
AC-FT							

many of the diversions and is used by the watermaster, mainly to indicate changes in flow conditions rather than amounts of water available. Consequently, the records do not show all the available water supply of the creek.

Method of Distribution

Water is diverted from the creeks, in most cases by means of low diversion dams, into ditches that convey it to the place of use. Lateral ditches are then used to spread it over the land. Irrigation has been on a continuous-flow basis instead of by rotation since 1934.

1992 Distribution

Watermaster service for North Cow Creek began on May 1 and continued through October 30 with John A. Nolan, Water Resources Engineering Associate, as watermaster.

Cedar Creek

The flow in Cedar Creek was adequate to supply all demands throughout the season.

Clover Creek

The flow was adequate to supply 100 percent of all allotments through the last week of May. It dropped to a low of 25 percent by mid-August where it stayed for the remainder of the irrigation season.

North Cow Creek

The flow was adequate to supply 100 percent of all allotments through the last week in May. It dropped rapidly through June and July and by the first week in August the Cook and Butcher Ditch (the lowest gravity ditch on the creek) went dry. During this first week in August the Grant-Pherson-Jones Ditch was reduced to its decreed minimum of 0.8 cfs for the remainder of the irrigation season. Near the middle of August, the Woodman Ditch, which was at 25 percent of its allotment, was cut in half in order to provide some water to the Cook and Butcher Ditch. This extra water was all lost to the channel so the Woodman Ditch was reset to 25 percent of its allotment. During the second week in September the natural flow of North Cow Creek increased from cooler temperatures and the Cook and Butcher Ditch was provided some stock water.

Oak Run Creek

The flow was adequate to supply 100 percent of first priority until mid-June. It dropped slowly to a low of 50 percent by the end of the irrigation season.

DIGGER CREEK WATERMASTER SERVICE AREA

The Digger Creek service area is situated in southeastern Shasta County and northeastern Tehama County.

Digger Creek forms part of the boundary between Shasta and Tehama counties. It drains about 45 miles on the western slopes of the Sierra, just west of Lassen National Park. The creek flows west through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, lies about 40 miles northeast of Red Bluff.

Basis of Service

The rights to use of the waters of Digger Creek were determined by four court adjudications. The Crooker Ditch, now combined with the Harrison Ditch, may divert all the water in the creek at its point of diversion. Diversions below this point, though defined by decree, are not in the service area.

Four Tehama County Superior Court decrees define the rights included in the service area. These decrees are listed in Table 15.

TABLE 15

DECREES DEFINING DIGGER CREEK WATER RIGHTS

Case	Decree No.	Date Entered
Gransbury v Edwards	2213	August 12, 1899
Wells v Pritchard	3214	May 27, 1913
Harrison et al v Kaler et al	3327	October 16, 1917
Herrick v Forward	4570	February 24, 1927

The four decrees have, in effect, divided the water rights on the creek into two groups, the upper users and the lower users. The three upper users irrigate land alongside the stream so that all run-off water returns to Digger Creek. The lower users are located within a 5-square-mile area. Very little runoff from the lower users returns to the creek.

The water rights of the three upper users are absolute and not related to those of lower users; therefore, allotments are not cut proportionally as Digger Creek flows decrease. Since the lower users have to stand all deficiencies, the upper users, in effect, have first priority allotments and the lower users have second and third priority allotments.

Water Supply

Snowmelt contributes to the early runoff, but the summer streamflow is primarily from springs. In average runoff years, there is sufficient flow in Digger Creek, with careful regulation, to satisfy all decreed allotments throughout the irrigation season, but serious deficiencies occur in dry years.

Method of Distribution

Irrigation is done mainly by wild flooding, although border checks and sprinklers are used on a few fields. Small diversion dams are placed in the stream channel to divert water into ditches for conveyance to the fields.

1992 Distribution

Watermaster service on Digger Creek began on June 1 and continued until September 30 with John A. Nolan, Water Resources Engineering Associate, as watermaster.

The winter of 1991 and spring of 1992 provided a very poor snowpack and light rainfall. However, the available water supply from flowing springs was adequate to fill 100 percent of the lower users allotments until the end of June. During July through September the flow receded so much that there was only 25 percent of third priority available in the Crooker-Harrison Ditch, which is the lowest diversion in the service area.

HAT CREEK WATERMASTER SERVICE AREA

The Hat Creek service area is in the eastern part of Shasta County, north of Lassen Volcanic Park. Hat Creek, which flows north through the area, is the only source of water in the service area. The place of use is Hat Creek Valley, which is about 20 miles long and 2 miles wide, running north from about 3 miles south of the town of Old Station to the confluence with Rising River. The irrigable lands, which consist primarily of volcanic ash, are interlaced with large volcanic rock outcropping.

Basis of Service

Hat Creek water is distributed under provisions of court reference adjudications which resulted in Decree No. 5724, dated May 14, 1924, and Decree No. 7858, dated May 7, 1935, Shasta Superior Court. Decree No. 5724 established irrigation and nonirrigation allotments for 18 periods of rotation between "upper" and "lower" user groups from May 1 to October 28 annually. Decree No. 7858 established three additional water right allotments for continuous irrigation, May 1 through October 28, and allotments for October 28 to May 1 annually for all users. These latter rights are not normally supervised by the watermaster.

Watermaster service in the Hat Creek area has been provided in accordance with the decree since 1924. The existing service area was created on September 11, 1929.

Decree No. 5724 defines the allotments in the separate schedules: upper and lower users, requiring 10-day rotations beginning at 6 a.m., May 1, and ending at 6 a.m., October 28. All water rights have the same priority, with the surplus flows distributed according to the users that are on rotation. The upper users' water rights require 153.135 cfs and lower users require 166.285 cfs. When the upper users are being served, the lower users receive a minimum flow for stock water.

Water Supply

The water supply for Hat Creek comes from snowmelt runoff from Lassen Peak and from large springs. Snowmelt creates a high flow during May and June, but most of the summer supply comes from large springs that decrease only slightly in output. Only after a series of dry years does the flow of these springs decrease below 75 percent of total allotments. Records of mean daily discharge of Hat Creek near Hat Creek are in Table 16.

Method of Distribution

Most irrigation in the area is done by wild flooding. Large heads of water are used to cover the land rapidly, thereby preventing excessive loss from percolation in the porous soil. Diversion dams built across the creek divert

HAT CREEK WATERMASTER SERVICE AREA

TABLE 16

1992 Daily Mean Discharge
(In cubic feet per second)

HAT CREEK NEAR HAT CREEK[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	90	87	117	105	93	89	83
2	89	89	115	104	91	89	82
3	89	90	115	103	89	89	83
4	88	93	118	102	88	89	84
5	88	92	123	102	88	89	82
6	88	91	127	101	87	89	82
7	89	90	132	100	86	89	82
8	87	91	138	100	85	88	86
9	86	93	132	98	85	85	88
10	86	89	123	93	89	83	88
11	86	89	127	90	91	83	88
12	86	94	130	91	92	83	88
13	86	100	128	93	92	83	88
14	85	94	126	94	92	83	88
15	85	92	125	94	91	82	88
16	85	92	124	92	91	83	88
17	85	117	123	90	92	82	87
18	84	113	121	90	91	82	83
19	83	106	120	89	91	85	81
20	83	105	120	93	87	88	81
21	83	104	108	95	85	88	82
22	83	102	103	94	85	88	82
23	82	99	103	94	84	88	81
24	81	98	103	99	85	88	81
25	81	102	104	96	84	88	81
26	82	110	104	95	83	89	82
27	82	111	102	94	84	88	81
28	83	114	100	95	84	89	85
29	84	125	99	101	83	85	87
30	85	125	96	101	87	83	87
31	85		102		89	82	
MEAN	85.1	99.9	116	96.3	87.9	86.1	84.3
AC-FT	5230	5940	7160	5730	5400	5290	5020

[1/] USGS station.

water into large ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditches or from laterals. Several domestic rights are met by pumping directly from Hat Creek. Some ranchers have leveled their fields in recent years, thus improving their irrigation efficiency.

1992 Distribution

Watermaster service on Hat Creek began on May 1 and continued through October 28, with John P. Clements, Associate Engineer, Water Resources, as watermaster.

The flow of Hat Creek at the USGS gage on May 1 was 117 cfs and reached a peak flow of 138 cfs on May 8. The flow of Hat Creek steadily decreased thereafter with an average flow of 96 cfs for the month of June, 88 cfs for July, 86 cfs for August, and 84 cfs for September. A review of the Hat Creek gaging station records shows the runoff for water year 1992 (October 1991 through September 1992) was the lowest since 1937. The Hat Creek gage began operation in 1926. The percentage of available water for the upper and lower rotations for the 1992 irrigation season were as follows:

Percentage of Entitlement

Period	Upper Rotation	Lower Rotation
May 1 - May 10	90	
May 11 - May 20		85
May 21 - May 30	85	
May 31 - June 9		65
June 10 - June 19	65	
June 20 - June 29		50
June 30 - July 9	70	
July 10 - July 19		50
July 20 - July 29	60	
July 30 - August 8		45
August 9 - August 18	55	
August 19 - August 28		45
August 29 - September 7	55	
September 8 - September 17		45
September 18 - September 27	55	
September 28 - October 7		45
October 8 - October 17	55	
October 18 - October 27		45

INDIAN CREEK WATERMASTER SERVICE AREA

The Indian Creek service area is in north central Plumas County, near Greenville. The major sources of supply in the service area are Indian Creek and two tributaries, Wolf Creek and Lights Creek. Indian Creek, along with minor tributaries, rises in the mountains east of the service area. It flows through Genesee and Indian Valleys and past Taylorsville and Crescent Mills to where it joins the North Fork Feather River. Indian Creek is joined on the north by Lights Creek in southeast Indian Valley and by Wolf Creek in the northwest part of the valley. The major place of use is in Indian Valley, an irregular-shaped area of about 20 square miles. The average elevation is about 3,500 feet.

Basis of Service

The Indian Creek watermaster service area was created on February 19, 1951. It includes, with certain exceptions, the water rights set forth in Decree No. 4185, entered December 19, 1950, by the Superior Court of Plumas County, and the rights under Permit 7665 issued in approval of Application 12642 after entry of the decree. The statutory proceeding leading to the decree was entitled, "In the Matter of the Determination of the Rights of the Various Claimants to the Water of Indian Creek Stream System in Plumas County, California."

The service area has been amended twice. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports show the work accomplished. There are 49 water right holders in the service area, with allotments totaling 96.715 cfs. Indian Creek decree establishes three priority classes for each major stream within the service area.

Water Supply

The water supply in the Indian Creek service area comes mainly from snowmelt, with springs and seepage maintaining some late summer flows. The flow of Wolf Creek is normally sufficient to supply all allotments until June 1. Indian and Lights creeks normally have sufficient flow to supply all allotments until July 1. After these dates, flows decrease throughout the season and by the end of August, only a small part of the allotments are available. The 1991 mean daily discharge for Indian Creek near Crescent Mills is in Table 17.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small diversion dams are constructed in the stream channels to divert water into distribution ditches for conveyance to the fields. Small check dams, located throughout the fields in swales, help to spread the water over the ground. There is a limited amount of check and border irrigation in the valley, and a few sprinkler systems are in use.

INDIAN CREEK WATERMASTER SERVICE AREA

TABLE 17

1992 Daily Mean Discharge
(In cubic feet per second)

INDIAN CREEK NEAR CRESCENT MILLS[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	214	153	79	13	18	5.7	4.4
2	207	144	74	15	14	7.5	4.0
3	198	134	68	11	13	5.7	4.4
4	197	126	63	11	16	7.0	5.0
5	244	113	64	12	13	7.3	4.1
6	299	106	60	13	7.4	5.6	4.3
7	257	94	60	12	12	4.3	6.1
8	228	95	75	8.2	11	4.5	5.3
9	203	101	70	10	8.5	5.0	4.6
10	186	97	60	7.9	6.9	6.0	5.2
11	174	109	57	9.3	6.2	5.7	7.3
12	168	168	53	7.3	6.4	6.2	5.3
13	164	248	51	9.3	5.6	6.2	5.6
14	164	198	48	11	7.2	4.4	4.7
15	177	166	42	12	7.2	5.0	7.1
16	205	143	32	9.6	9.3	7.8	6.5
17	178	162	29	13	10	7.4	6.4
18	162	165	25	14	7.2	5.4	6.5
19	152	143	23	10	6.7	5.6	5.4
20	146	128	22	8.0	5.9	4.6	7.2
21	142	110	20	6.4	5.4	3.5	6.3
22	145	99	19	15	6.5	4.3	5.0
23	153	100	24	12	7.2	3.9	5.2
24	146	93	22	11	12	3.6	4.1
25	144	88	16	13	9.6	4.3	3.7
26	152	84	16	11	6.6	4.3	4.5
27	147	81	17	6.6	10	3.9	4.0
28	141	75	17	8.2	9.8	2.8	4.5
29	145	72	12	14	9.2	3.0	8.0
30	144	71	15	17	8.5	3.1	6.9
31	147		12		6.0	4.7	
MEAN	178	122	40.2	11.0	9.1	5.1	5.4
AC-FT	10970	7270	2470	656	560	314	321

[1/] USGS Station

1992 Distribution

Watermaster service began in the Indian Creek service area on April 2, 1992, and continued through October 1, 1992, with Ralph D. Howell, Water Resources Engineering Associate, as watermaster. The 1992 water season was well below average for the Indian Valley watermaster service area.

Wolf Creek

The water supply of Wolf Creek started the season with only 75 percent of first priority available. By the middle of June the flow was down to 25 percent of the first priority where it remained for the rest of the season.

Lights Creek and Tributaries

The available water supply of Lights and Cooks creeks was adequate to supply 100 percent of the first priority through April; by early June there was enough to supply 25 percent of the first priority, and by the middle of July there was no water.

Indian Creek

The available water supply of Indian Creek was adequate to supply all demands through April. By early July the flow was adequate to supply 75 percent of first priority and remained at this level for the duration of the season.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

The Middle Fork Feather River service area is in Sierra Valley on the west slope of the Sierra Nevada in eastern Sierra and Plumas counties.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in the Sierra Valley. The area comprises five major stream groups. Starting in the northeast corner of the valley and proceeding in a clockwise direction, these are Little Last Chance Creek, Smithneck Creek, Webber Creek and tributaries, West Side Canal, and Fletcher Creek and Spring Channels. The Middle Fork Feather River flows generally north for about 15 miles through Sierra Valley. It then flows out of the valley in a westerly direction near Beckwourth. The major place of use is in Sierra Valley, which is about 15 miles long and 10 miles wide. The average elevation of the valley floor is 4,900 feet.

Basis of Service

The Middle Fork Feather River watermaster service area was created on March 29, 1940, to include, with the exception of certain tributaries and springs, all water rights set forth in Decree No. 3095, entered in the Middle Fork Feather River statutory adjudication proceeding on January 19, 1940, Superior Court, Plumas County. The decree establishes the number of priority classes for each of the major stream systems within the Middle Fork Feather River service area as follows: (1) Little Last Chance Creek - eight; (2) Smithneck Creek - five; (3) West Side Canal Group - five; (4) Fletcher Creek and Spring Channels - three; (5) Webber Creek and tributaries - six; and (6) Sierra Valley Water Company - one.

The service area has been amended three times. Watermaster service has been provided during each irrigation season since the service area was created, and annual reports have been prepared to show the work accomplished.

There are currently 119 water right owners in the service area, with total allotments amounting to 376.739 cfs.

Water Supply

The major water supply in the Middle Fork Feather River service area comes from runoff, with minor flow from springs and supplemental flows from permit rights and foreign water from the Little Truckee River.

Natural flows of Little Last Chance Creek are supplemented by reservoir storage provided by Frenchman Dam, which was built by DWR in 1961. Stored water is released as needed under the provisions of a water supply contract.

Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about June 1 when only first and second priority allotments are available for the remainder of the season.

The natural flow of Weber Creek is normally sufficient to supply all allotments until the middle of May. At that time, up to 60 cfs is diverted from the Little Truckee River to supplement the natural flow. This imported water is diverted through the Little Truckee Ditch into Onion Creek and then into Weber Creek, via Cold Stream, for use of shareholders in the Sierra Valley Water Company. This supplemental supply decreases rapidly in July, producing only a small quantity during the latter part of the season.

The West Side Canal streams normally supply all allotments until early June. The flow then gradually declines throughout the remainder of the season. The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. Then it gradually declines for the rest of the season.

Records of the daily mean discharges of Little Truckee Ditch and the Middle Fork Feather River near Portola are presented in Tables 18 and 19.

Method of Distribution

Wild flooding is used by most ranches to irrigate their fields. Small diversion dams are placed in the stream channels to divert the water into individual distribution systems. Check dams are constructed in the swales to implement flooding once the water reaches the fields.

1992 Distribution

Watermaster service began March 15 in the Middle Fork Feather River service area and continued until September 30, with Conrad L. Lahr, Water Services Supervisor, as watermaster. The available supply in the service area was below average during the season.

Little Last Chance Creek

Frenchman Dam and Reservoir began its thirtieth season of operation. A five-year contract concerning storage, distribution, and sale of water was negotiated during 1989 with the Last Chance Creek Water District. Delivery and distribution of water was made in accordance with the provisions of the contract and the instructions of the District's Board of Directors. Deliveries for Little Last Chance Water District started April 22, 1992. A total of 5,000 acre-feet of water was delivered. Charles D. Hand, Water Resources Engineering Associate, performed the duties of watermaster in the District.

Smithneck Creek

The normal two-week rotation schedule for water users below Loyalton was started March 25, 1992, with sufficient water to supply first and 30 percent of second priorities. By mid-August, the flow dropped to only supply first priority.

Weber Creek

Flow in this system decreased to only 80 percent of first priority by mid-July. Importation of water from the Little Truckee River began March 24, 1992, to supplement the natural flow of Weber Creek to satisfy all allotments of the Sierra Valley Water Company shareholders (one priority). A total of 7,409 acre-feet of water was delivered through the Little Truckee Ditch during the irrigation season. This diversion was cut off on July 2 by order of the Federal watermaster.

West Side Canal Group

Sufficient water was available to supply first and second priorities at the start of the season. The flow decreased by early August to satisfy less than 25 percent of second priority.

Fletcher Creek and Spring Creek

This system started the irrigation season with enough water to supply all of first and 50 percent of second priorities. By mid-July, the flow had dropped to only 50 percent of first priorities.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

TABLE 18

1992 Daily Mean Discharge
(In cubic feet per second)

LITTLE TRUCKEE DITCH AT HEAD

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		45	59	24	0.1[1/]		
2		46	59	24	0.0		
3		47	58	21			
4		48	60	19			
5		47	60	15			
6		52	60	15			
7		60	60	14			
8		60	61	10			
9		60	60	10			
10		60	58	11			
11		60	59	8.2			
12		61	60	7.0			
13		61	61	7.3			
14		61	60	6.5			
15		61	61	10			
16		60	61	4.6			
17		59	59	0.8			
18		61	59	0.8			
19		61	60	0.8			
20		61	54	0.7			
21		61	45	0.7			
22		61	43	0.6			
23		60	42	3.0			
24	6.0[1/]	60	42	5.1			
25	17	61	40	4.6			
26	17	61	36	4.2			
27	17	61	36	3.2			
28	17	61	42	1.2			
29	18	61	33	0.4			
30	26	61	31	0.1			
31	42		25				
MEAN	20.0	58.0	51.7	7.8			
AC-FT	317	3450	3180	462	0.2		

[1/] No record before March 24 and no flow after July 1.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

TABLE 19

1992 Daily Mean Discharge
(In cubic feet per second)

MIDDLE FORK FEATHER RIVER NEAR PORTOLA

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	72	22	13	7.0	5.0	5.0	11
2	72	22	13	7.0	5.0	5.0	11
3	71	23	15	8.0	5.0	5.0	11
4	70	25	16	8.0	9.0	5.0	11
5	68	25	15	9.0	10	7.0	11
6	71	24	14	11	11	9.0	11 E
7	78	21	14	11	11	7.0E	11 E
8	83	20	14	11	11	11 E	11 E
9	83	19	13	11	11	11 E	11
10	75	18	14	11	11	11 E	11
11	67	18	14	11	11	11	11
12	61	20	13	11	11	11	11
13	59	20	13	11 E	11	9.0	11
14	54	20	11	11 E	11	5.0	11
15	49	24	10	11 E	11	9.0	11
16	49	29	9.0	11 E	10	11	11
17	49	30	9.0	11 E	10	11	11
18	49	31	7.0	11 E	10	10	11
19	48	30	6.0	11 E	10	10	11
20	46	31	7.0	11 E	9.0	10	11
21	44	38	7.0	11 E	6.0	10	11
22	42	39	7.0	10	6.0	10	11
23	43	37	7.0	5.0	5.0	10	12
24	43	20	8.0	5.0	5.0	10	12
25	42	13	7.0	5.0	5.0	10	12
26	41	13	7.0	5.0	5.0	11	12
27	40	30	7.0	5.0	5.0	11	12
28	41	18	7.0	5.0	5.0	11	12
29	30	14	7.0	6.0	5.0	11	12
30	21	13	6.0	7.0	5.0	11	12
31	21		7.0		5.0	11	
MEAN	57.5	23.6	10.2	8.9E	8.1	9.3E	11.3E
AC-FT	3530	1400	628	532 E	496	573 E	670 E

E - Estimated

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

The North Fork Cottonwood Creek service area is in Shasta County near the town of Ono, west of Redding. The source of water for this service area is the North Fork of Cottonwood Creek and its two major tributaries, Moon Creek and Jerusalem Creek. The North Fork of Cottonwood Creek flows through the service area in a southeasterly direction to where it joins the other two major forks of Cottonwood Creek and then to the Sacramento River east of the town of Cottonwood. The service area consists of sparsely scattered parcels, some in hilly terrain and some in the valleys.

Basis of Service

The water rights of this creek system were determined by court reference and set forth in Decree No. 5479, Shasta County Superior Court, dated June 9, 1920. The North Fork Cottonwood Creek watermaster service area was created September 11, 1929, although service had been provided intermittently in accordance with the decree since 1924. All water rights have equal priority.

Water Supply

Snowmelt contributes to the flow in the North Fork Cottonwood Creek system during the early part of the irrigation season, and perennial springs provide the major source of supply during the summer and fall months. The flow is normally sufficient to supply all demands except in dry years, when the available supply may be as low as 20 to 40 percent of the decreed allotments. A record of the daily mean discharge of North Fork Cottonwood Creek near Igo is presented in Table 20. This gaging station is at the lower end of the creek, but gives a general indication of the water supply.

Method of Distribution

The general practice throughout the area is to irrigate by wild flooding. One water user pumps directly from the creek, using a sprinkler system to irrigate his crops. Pumping was necessary at this diversion point because the irrigated land was considerably higher than the creek channel.

1992 Distribution

Watermaster service for North Fork Cottonwood Creek began June 1 and continued through September 30 with John A. Nolan, Water Resources Engineering Associate, as watermaster.

The available water supply for the service area was below normal. However, the Bee Ditch diversion dam was in such poor condition that very little water was diverted to this ditch allowing for near full entitlement diversions to the remaining ditches.

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA

TABLE 20

1992 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK NORTH FORK NEAR IGO

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	409	281	178	57	104	25	10
2	353	273	170	62	84	23	7.6
3	286	268	163	60	76	19	7.9
4	281	239	154	56	72	18	8.4
5	520	179	144	51	71	18	8.9
6	789	172	140	51	71	20	8.9
7	596	167	137	41	65	21	8.8
8	491	163	133	38	46	20	8.1
9	407	160	126	37	40	19	3.0
10	367	157	123	34	40	16	2.3
11	335	160	110	35	41	13	3.0
12	309	455	94	45	40	12	3.1
13	291	528	88	45	40	13	2.5
14	545	351	74	43	39	15	2.2
15	1250	302	71	51	38	14	2.4
16	1080	329	66	52	37	14	2.2
17	815	414	63	49	35	12	2.1
18	667	307	62	47	35	11	1.9
19	576	280	64	49	34	11	1.5
20	514	263	69	45	34	9.4	1.4
21	459	249	60	42	34	8.6	1.4
22	455	233	56	38	33	11	2.0
23	426	222	54	35	33	14	2.3
24	395	211	51	38	33	14	2.2
25	367	208	50	37	32	14	2.4
26	352	205	52	35	32	13	2.2
27	335	200	52	34	31	7.4	1.9
28	316	194	51	37	26	7.5	2.0
29	303	191	55	73	26	7.8	2.0
30	306	186	56	201	24	8.9	2.1
31	292		55		22	10	
MEAN	480	252	91.0	50.6	44.1	14.2	3.9
AC-FT	29530	14970	5595	3011	2713	872	231

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

The North Fork Pit River service area lies along the west slopes of the Warner Mountains in northeastern Modoc County and extends southward from the Oregon border about 45 miles to just south of Alturas.

The North Fork Pit River flows in a southerly direction from the south rim of Goose Lake Basin to its confluence with the South Fork Pit River west of Alturas. The basins of Goose Lake and the North Fork Pit River may be considered completely separate, since the lake has not spilled into the river since 1890.

Eight small independent streams flowing in a westerly direction from the west slope of the Warner Mountains constitute the major source of water. Three of these (New Pine, Cottonwood, and Davis creeks) are tributary to Goose Lake. Five are tributary to the North Fork Pit River. From north to south, they are: Linville, Franklin, Joseph, Thoms, and Parker creeks.

The place of use in the northern half of the area is a relatively long, narrow, sloping strip of land between the east shore of Goose Lake and the foothills of the Warner Mountains. The places of use in the southern half of the area, which are supplied from the North Fork Pit River and its tributaries, are primarily in the narrow valleys bordering the streams. The elevation of the places of use range from about 4,350 feet just below Alturas to about 5,200 feet at the upper portions on some of the creeks.

Basis of Service

Table 21 briefly outlines the five decrees covering the area and presents data on the establishment of watermaster service and water rights.

Water Supply

The water supply comes mainly from snowmelt for all streams in the North Fork Pit River service area except Linville Creek, which, having a relatively small drainage area, is almost entirely spring-fed. After mid-June, the rest of the streams also depend on springs, but diminish rapidly until mid-July, after which the flow remains fairly constant. There are several small reservoirs in the area, but they are used essentially for regulatory storage. The mean daily discharge of various tributaries is presented in Tables 22 through 27.

Method of Distribution

Distribution is accomplished by diversion structures in the main channels diverting into ditches that convey the water to its place of use. Wild flooding from small feeder ditches is the common method of application. There is, however, increasing use of sprinkler systems, some directly from ditches, with

TABLE 21

DECREES AND RELATED DATA - NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Decree Water Right Holders	Total cfs	Remarks
New Pine	2821	6-14-32	CR	6-22-32	21	22.19	Four priorities.
Cottonwood	2344	5-03-40	CR	12-13-40	5	15.35	When water for Diversion Creek No. 3 is insufficient to reach the area of use, it is diverted at Diversion No. 4.
Davis	2782	6-30-32	CR	7-13-32	19	68.75	Four priorities, 4-1 to 9-30. Some rights vary according to flow available. Most first & second priorities are year-round. One second priority right is for 0.40 cfs export for Roberts Creek.
					2[b]		Appropriative Permit 9825 allows diversion from North Fork Davis Creek and License 10549 to divert from Davis Creek, both for the period from 10-1 to 5-1.
Franklin	3118	9-08-33	CR	9-14-33	3	11.66	Four priorities. The first priority and all second priority rights are year-round, except one which is equal to the sum of all the others (1.46 cfs) and is for the period 9-15 to 3-31 annually. Third and fourth priorities are for 4-1 to 9-30 each year.
North Fork Pit River	4074	12-14-39	S	12-18-39	10	52.08	Five priorities, 4-1 to 9-30. Pit River Dorris Reservoir water diverted through Parker Creek ditch on Parker Creek. Fourth and fifth priorities are special class.
Linville	4074	12-14-39	S	12-18-39	3	8.30	Two priorities.
Joseph	4074	12-14-39	S	12-18-39	6	11.98	Four priorities, 4-1 to 9-30. Diversions on south side of stream, with the exception of No. 26, are on net consumptive use basis.
Parker	4074	12-14-39	S	12-18-39	9	17.87	Four priorities, 4-1 to 9-30. Diversion on Dorris Reservoir shown on North Fork Pit River schedule is made at No. 122, Parker Creek Ditch.
Shields	4074	12-14-39	S	12-18-39	7	7.70	Four priorities, 4-1 to 9-30.
Thoms	4074	12-14-39	S	12-18-39	9	6.44	Three priorities, 4-1 to 9-30.
						9.40	5.0 cfs export to Cedar Creek; and 4.40 cfs export to Stony Canyon.
Gleason	4074	12-14-39	S	12-18-39	4	4.55	Five priorities.

[a] S-Statutory, CR-Court Reference.
[b] Appropriative rights, junior to the decreed rights.

supplemental ground water being added as the surface flow diminishes. Sub-irrigation by the use of large flashboard dams to raise the water level in the channel is practiced along the North Fork Pit River between Parker Creek and Alturas.

The spring runoff from the Warner Mountains was only about 10 percent of normal this season, the lowest in recorded history. The flow from the creeks that are tributary to Goose Lake did not reach the lake this year. The water level in Goose Lake was so low at the end of the irrigation season that it appears the lake bed will completely dry before the start of the 1993 spring runoff. The last time Goose Lake was dry was in 1934. With the water supply severely restricted, the water users only irrigated their most productive lands and reduced the size of their herds.

1992 Distribution

Watermaster service began in the North Fork Pit River watermaster service area on April 1 and continued through September 30. John P. Clements, Associate Engineer, Water Resources, served as watermaster from April 1 through April 19. George M. Fitzmorris, Assistant Engineer, Water Resources, served as watermaster from April 20 thru September 30.

New Pine Creek

This season, the flow in New Pine Creek only reached about one-half way down from the California Ditch diversion to the creek's outlet into Goose Lake. The maximum flow this season was 18 cfs.

With the flow in the creek down to 5.2 cfs, the creek was closed off on June 4 and the water was diverted into the California Ditch to meet the water right needs of the higher priority users. The creek flow on July 1 was 5.2 cfs. The flow continued to decline, reaching the first priority level on July 15. On September 30 the flow in New Pine Creek was 1.5 cfs.

Cottonwood Creek

The maximum flow in Cottonwood Creek this season was 6.0 cfs, which occurred on April 17. The flow in the creek receded rapidly, reaching the first priority level on May 8. On August 1, Cottonwood Creek was completely dry and remained so the rest of the season.

Davis Creek

The maximum flow in Davis Creek this season was 17 cfs, which occurred on April 17. The flow in the creek declined rapidly to 3.8 cfs on June 1. The flow in Davis Creek on September 30 was 2.8 cfs.

Linville Creek

Linville Creek, being spring-fed, had little variation in the flow during the irrigation season. The maximum flow in the creek this season was 3.0 cfs, which occurred in April. The average flow in July, August and September was 2.5 cfs.

Franklin Creek

The maximum flow in Franklin Creek this season was 5.8 cfs. The flow in the creek receded to the second priority level of 1.6 cfs during late July and early August and then went up slightly. The flow in Franklin Creek on September 30 was 1.8 cfs.

Joseph Creek

The maximum flow in Joseph Creek this season was 8.0 cfs. The full priority level is 8.75 cfs. The flow in the creek declined rapidly, reaching the first priority level of 2.35 cfs on June 5. At that time, the XL Ranch's second priority diversion was closed. The flow in Joseph Creek at the gaging station on September 30 was 0.8 cfs.

Thoms Creek

Full priority water was available only during April of this season. The flow decreased to about 1 cfs by August 1 and to about 0.5 cfs by September 30.

Parker Creek

The diversion to Dorris Reservoir was discontinued on April 16. The maximum flow in Parker Creek this season was about 10 cfs. The flow decreased rapidly, reaching the first priority level of 1.8 cfs by mid-July. The flow in Parker Creek on September 30 was 1.3 cfs.

Shields Creek

The maximum flow in Shields Creek this season was about 5 cfs. The flow in the creek receded rapidly, reaching 1.4 cfs by mid-July. The flow in Shields Creek on September 30 was 1.1 cfs.

North Fork Pit River

Due to low flows, Linville, Franklin, Joseph, Thoms, and Parker Creeks furnished very little outflow to the North Fork of the Pit River this season. The XL Ranch's storage reservoir, Lauers Reservoir, was already dry at the beginning of the season. With so little water available, the flow in the North Fork was used mainly for stock water. The meadows along the North Fork produced very little hay, being used mainly for pasture. The water right holders reduced their herds and bought hay for winter feed.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 22

1992 Daily Mean Discharge
(In cubic feet per second)

NEW PINE CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		6.4[1/]	13	5.5	5.2	2.0	1.6
2		6.4	12	5.5	4.3	2.0	1.6
3		6.8	11	5.5	4.0	1.9	1.6
4		7.2	11	5.2	3.8	1.9	1.6
5		6.8	11	5.2	3.8	1.9	1.6
6		6.4	11	5.2	3.8	1.9	1.6
7		5.8	11	4.8	3.6	1.9	1.6
8		5.5	11	4.8	3.6	1.8	1.6
9		6.4	11	4.8	3.6	1.9	1.6
10		7.8	10	4.8	3.6	1.9	1.5
11		9.4	9.9	4.8	3.6	1.9	1.5
12		11	9.9	4.8	4.0	1.9	1.5
13		12	9.4	4.8	3.3	1.9	1.6
14		11	8.8	4.6	3.1	1.9	1.6
15		11	8.3	4.6	2.9	1.9	1.6
16		12	7.8	4.6	2.8	1.8	1.5
17		18	7.8	4.6	2.8	1.9	1.5
18		17	7.6	4.6	2.8	1.9	1.5
19		15	7.6	4.3	2.8	1.9	1.5
20		14	8.8	4.3	2.6	1.8	1.4
21		13	8.3	4.0	2.6	1.8	1.4
22		13	7.6	4.0	2.5	1.9	1.5
23		12	6.8	4.0	2.5	1.9	1.5
24		11	6.4	4.0	2.5	1.9	1.4
25		10	6.6	4.3	2.5	1.9	1.5
26		11	6.6	4.6	2.5	1.9	1.5
27		11	6.4	4.6	2.3	1.9	1.5
28		11	6.1	4.8	2.3	1.8	1.5
29		13	5.8	6.4	2.3	1.8	1.5
30		13	5.8	5.8	2.2	1.8	1.5
31			5.5		2.0	1.8	
MEAN		8.5	8.7	4.8	3.1	1.9	1.5
AC-FT		508	535	285	191	116	91

[1/] No record before April 1.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 23

1992 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			5.3	0.6	0.8		
2			4.8	0.7	0.8		
3			4.4	0.6	0.8		
4			4.1	0.5	0.7		
5			3.7	0.4	0.7		
6			3.4	0.5	0.6		
7			3.7	0.5	0.5		
8			3.4	0.4	0.4		
9			3.7	0.5	0.4		
10			3.4	0.5	0.3		
11			3.0	0.4	0.4		
12			2.8	0.5	0.5		
13			2.1	0.5	0.3		
14			1.6	0.6	0.2		
15			1.3	0.5	0.1		
16			1.3	0.5	0.1		
17			1.2	0.4	0.1		
18			1.0	0.5	0.1		
19			0.9	0.5	0.1		
20			1.0	0.4	0.1		
21			1.0	0.3	0.1		
22		4.4[1/]	1.2	0.2	0.1		
23		4.4	1.2	0.2	0.1		
24		4.4	1.0	0.2	0.1		
25		4.1	1.3	0.2	0.1		
26		4.1	1.0	0.3	0.1		
27		4.1	0.9	0.3	0.1		
28		4.4	0.8	0.3	0.1		
29		5.3	0.8	0.6	0.1		
30		6.0	0.7	0.9	0.1		
31			0.7		0.1		
MEAN		4.6	2.2	0.4	0.3		
AC-FT		82	132	27	18		

[1/] No record before April 22 and no flow after July 31.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 24

1992 Daily Mean Discharge
(In cubic feet per second)

DAVIS CREEK BELOW DIVERSIONS NO. 1, 3, AND 21

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		7.3[1/]	10	3.8	4.6	2.4	3.3
2		7.0	9.0	3.8	4.1	2.4	3.3
3		7.3	8.7	3.8	3.6	2.6	3.3
4		7.6	8.3	3.6	3.3	2.8	3.3
5		6.7	8.0	3.8	3.3	2.8	3.1
6		6.4	8.0	3.6	3.3	3.1	3.1
7		6.1	8.0	3.6	3.1	3.1	3.1
8		6.4	8.0	3.6	3.1	2.8	3.3
9		7.6	7.7	3.6	3.1	2.8	3.1
10		12	7.7	3.3	2.8	2.8	3.1
11		11	7.3	3.3	3.3	2.6	3.3
12		10	7.3	4.1	3.6	2.8	3.3
13		9.7	7.0	4.1	3.3	3.1	3.1
14		8.6	6.7	3.8	3.1	2.8	3.1
15		9.0	6.4	3.6	3.1	2.6	3.1
16		12	6.1	3.6	2.8	2.8	2.8
17		17	6.4	3.6	2.8	2.8	3.1
18		14	5.8	4.1	3.1	2.6	3.1
19		13	5.8	3.6	2.8	2.6	2.8
20		13	5.5	3.3	2.8	2.8	2.8
21		12	5.2	3.1	3.1	2.8	2.8
22		11	4.9	2.8	2.8	2.8	2.8
23		10	4.9	3.1	2.8	2.8	3.1
24		10	4.6	3.8	2.8	3.1	3.3
25		11	4.9	4.6	2.6	3.1	3.3
26		11	5.2	4.6	2.6	2.8	3.3
27		11	4.9	3.3	2.4	3.1	3.3
28		11	4.6	3.3	2.4	3.3	3.1
29		11	4.4	5.2	2.6	3.3	3.1
30		11	4.1	4.9	2.6	3.1	2.8
31			4.1		2.4	3.1	
MEAN		10.0	6.4	3.7	3.0	2.8	3.1
AC-FT		596	396	223	187	175	185

[1/] No record before April 1.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 25

1992 Daily Mean Discharge
(In cubic feet per second)

LINVILLE CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		2.7[1/]	2.6	2.6	2.7	2.5	2.5
2		2.7	2.6	2.6	2.6	2.5	2.5
3		2.7	2.6	2.6	2.6	2.5	2.6
4		2.9	2.6	2.6	2.6	2.5	2.5
5		2.9	2.6	2.6	2.6	2.5	2.5
6		2.9	2.6	2.6	2.6	2.5	2.5
7		2.7	2.6	2.6	2.6	2.5	2.5
8		2.7	2.6	2.6	2.6	2.5	2.5
9		2.9	2.6	2.6	2.6	2.5	2.5
10		3.0	2.6	2.6	2.6	2.5	2.5
11		2.9	2.6	2.6	2.5	2.5	2.5
12		3.0	2.6	2.7	2.5	2.5	2.5
13		2.9	2.6	2.7	2.5	2.5	2.5
14		2.9	2.6	2.7	2.5	2.5	2.5
15		2.9	2.6	2.6	2.5	2.5	2.5
16		3.0	2.6	2.6	2.5	2.5	2.5
17		3.0	2.6	2.6	2.5	2.5	2.5
18		2.9	2.6	2.6	2.5	2.5	2.5
19		2.9	2.6	2.6	2.5	2.5	2.5
20		2.7	2.6	2.6	2.5	2.5	2.5
21		2.7	2.6	2.6	2.5	2.5	2.5
22		2.7	2.6	2.6	2.5	2.5	2.5
23		2.7	2.6	2.6	2.5	2.4	2.5
24		2.7	2.6	2.9	2.5	2.4	2.6
25		2.7	2.7	3.0	2.5	2.4	2.6
26		2.7	2.9	2.7	2.5	2.5	2.5
27		2.7	2.7	2.6	2.5	2.5	2.5
28		2.7	2.6	2.6	2.5	2.5	2.5
29		2.7	2.6	2.9	2.5	2.5	2.5
30		2.6	2.6	2.7	2.5	2.5	2.5
31			2.6		2.5	2.5	
MEAN		2.8	2.6	2.6	2.5	2.5	2.5
AC-FT		167	161	158	156	153	149

[1/] No record before April 1.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 26

1992 Daily Mean Discharge
(In cubic feet per second)

FRANKLIN CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		2.9[1/]	2.9	1.8	2.5	1.6	1.8
2		3.1	2.7	1.8	2.3	1.8	1.8
3		3.3	2.7	1.8	2.1	1.8	1.8
4		3.9	2.7	1.8	2.1	1.8	1.8
5		3.5	2.5	1.8	2.0	1.6	1.8
6		3.5	2.5	1.8	2.0	1.8	1.8
7		3.3	2.5	1.8	2.0	1.8	1.8
8		3.3	2.5	1.8	2.0	1.8	1.8
9		3.7	2.5	1.8	2.0	1.8	1.8
10		5.0	2.5	1.8	2.0	1.8	1.8
11		4.3	2.3	1.8	2.0	1.8	1.8
12		4.6	2.3	2.0	2.0	1.8	1.8
13		4.1	2.3	2.1	2.0	1.8	1.8
14		4.3	2.3	2.3	2.0	2.0	1.8
15		4.6	2.3	2.1	1.8	2.0	1.8
16		5.2	2.3	2.1	1.8	2.0	1.8
17		5.8	2.5	2.1	1.8	2.0	1.8
18		5.0	2.3	2.3	1.8	2.0	1.8
19		4.6	2.3	2.1	1.8	2.0	2.0
20		4.6	2.5	2.1	1.8	1.8	2.0
21		4.3	2.3	2.1	1.8	1.8	1.8
22		4.1	2.3	2.1	1.8	1.8	1.8
23		3.9	2.3	2.1	1.8	1.8	1.8
24		3.5	2.1	2.5	1.8	1.8	1.8
25		3.3	2.1	2.7	1.8	1.8	1.8
26		3.3	2.1	2.9	1.8	1.8	1.8
27		3.1	2.1	2.3	1.6	2.0	1.8
28		3.1	2.1	2.3	1.8	1.8	1.8
29		2.9	2.1	2.7	1.6	1.8	1.8
30		2.9	2.0	2.9	1.6	1.8	1.8
31			2.0		1.6	1.8	
MEAN		3.9	2.4	2.1	1.9	1.8	1.8
AC-FT		232	144	126	117	113	108

[1/] No record before April 1.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 27

1992 Daily Mean Discharge
(In cubic feet per second)

JOSEPH CREEK BELOW COUCH CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		3.8[1/]	4.6	2.7	1.6	1.7	0.8
2		3.2	4.3	2.7	1.5	1.7	0.8
3		2.8	4.1	2.8	1.3	1.5	0.8
4		3.1	3.6	2.6	1.3	1.3	0.9
5		2.7	3.5	2.4	1.2	1.1	0.9
6		2.5	3.6	2.2	1.2	1.2	0.9
7		2.5	3.5	2.1	1.2	0.9	0.9
8		2.7	3.3	2.0	1.2	0.7	0.9
9		3.9	3.2	1.9	1.0	0.7	1.0
10		6.6	3.1	2.0	1.8	0.7	1.0
11		5.2	3.0	2.1	1.9	0.8	0.9
12		5.8	2.7	2.2	1.9	0.9	0.9
13		5.5	2.8	2.2	1.9	0.9	0.8
14		5.3	3.8	2.3	1.9	0.9	0.8
15		5.6	3.8	2.2	1.9	0.9	0.8
16		6.6	3.5	2.1	1.9	1.0	0.7
17		8.0	3.3	0.9	1.9	0.9	0.7
18		7.3	3.2	1.9	1.9	0.9	0.7
19		7.0	3.3	1.5	1.9	0.8	0.7
20		6.6	3.2	1.3	1.9	0.9	0.7
21		6.5	3.3	1.2	1.9	0.9	0.7
22		5.8	3.1	1.1	2.0	1.0	0.7
23		5.2	2.8	1.0	2.0	1.0	0.7
24		5.1	2.7	1.0	1.9	1.0	0.8
25		4.8	2.7	1.0	1.9	0.9	0.8
26		4.9	2.8	1.9	1.9	0.8	0.8
27		4.8	2.7	1.3	1.9	0.8	0.8
28		4.8	3.0	1.2	1.7	0.8	0.8
29		4.9	2.8	1.2	1.8	0.8	0.8
30		4.9	3.0	1.9	1.7	0.8	0.8
31			2.8		1.6	0.9	
MEAN		5.0	3.3	1.9	1.7	1.0	0.8
AC-FT		294	200	111	104	60	48

[1/] No record before April 1.

SCOTT RIVER WATERMASTER SERVICE AREA

The Scott River service area is in western Siskiyou County and consists of five tributaries of the Scott River: French Creek, Shackleford Creek, Sniktaw Creek, Oro Fino Creek, and Wildcat Creek. Before 1980, French Creek and Shackleford Creek were separate service areas. Wildcat Creek came into service in 1981, Oro Fino in 1984, and the five tributaries to the Scott River were combined to form the Scott River watermaster service area.

Scott River Service Area 1992 Distribution

Watermaster service began in the Scott River watermaster service area on April 1 and ended on September 30 with Keithal B. Dick, Water Resources Technician II, as watermaster. Lester L. Lighthall, Water Resources Technician II, was called into service on April 15 and finished on September 30. Mr. Lighthall's services were needed to assist Mr. Dick because of the increased need for regulation.

French Creek

The French Creek service area is in Scott Valley, western Siskiyou County, near the town of Etna. The major sources of water supply are French, Miners, and North Fork French Creeks. French Creek flows northeast through the center of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction, joining French Creek about three miles above its confluence with Scott River. North Fork French Creek begins north of the headwaters of French Creek and flows easterly, joining French Creek one mile upstream from the confluence with Miners Creek.

The service area encompasses the entire agricultural area within the French Creek Basin and some additional lands along the west side of the Scott River near the town of Etna. It is about 0.5 mile wide and 5 miles long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 3,200 feet at the south to about 2,800 feet at the confluence of French Creek and Scott River.

Basis of Service. The rights of this creek system were determined by court reference and set forth in Decree No. 14478, Siskiyou County Superior Court, dated July 1, 1958.

The French Creek watermaster service area was created on November 19, 1968, and service was started on July 1, 1969.

Water is distributed according to three schedules: North Fork French Creek, with three priorities; Miners Creek with three; and French Creek, Horse Range Creek, Paynes Lake Creek, and Duck Lake system, with seven.

These schedules are independent of each other with two exceptions: (1) Miners Creek users have the option of diverting from French Creek when water is not available from Miners Creek, and (2) maximum allowable flows are specified at given points, regardless of the source of the water.

One peculiarity of this decree is that it included two water rights that have a specified amount, which are subject to the exclusive control of the other owners of the ditch.

Water Supply. The water supply comes from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 32 square miles of heavily forested, steep mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 7,200 feet along its west rim to about 3,200 feet at the foot of the slopes bordering French Creek Valley. Snowmelt runoff is normally sufficient to supply all demands until about the middle of July. The daily mean discharge of French Creek above North Fork French Creek is presented in Table 28.

French Creek 1992 Distribution

The season started on French Creek with all users receiving full rights. These flows continued above 100 percent of all priorities until June 10. By August 1, distribution was down to second priority users only and continued at that rate until September 30, the end of the irrigation season.

Releases were started from Smith Lake to the North Fork Ditch users on June 10.

Shackleford Creek

The Shackleford Creek service area is in western Siskiyou County near the town of Fort Jones in Scott Valley. The major sources of water for this service area are Shackleford Creek, which flows through the central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small tributary to Mill Creek, enters from the south.

The service area encompasses the Quartz Valley region of Scott Valley and includes the entire agricultural area within the Shackleford Creek Basin. It is about 2 miles wide by 6 miles long, with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 3,100 feet at the south to about 2,650 feet at the confluence of Shackleford Creek and Scott River.

Basis of Service. The Shackleford Creek watermaster service area was created on November 6, 1950. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 13775, Siskiyou County Superior Court, dated April 3, 1950.

The allotments are defined in four separate schedules. The upper and lower Shackleford Creek groups each have seven priority classes. The upper Mill Creek group and lower Mill Creek group each have three priority classes.

The decree also includes two storage rights upstream of all diversions. This stored water is released late in the irrigation season to Shackleford Creek for use by water right holders.

TABLE 28

1992 Daily Mean Discharge
(In cubic feet per second)

FRENCH CREEK ABOVE NORTH FORK FRENCH CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1			45	9.8		2.8[1/]	1.8
2			34	8.8		2.8	1.6
3			31	8.5		3.0	2.0
4			29	7.9		2.6	2.0
5			31	7.6		3.2	2.6
6			32	7.4		2.6	3.0
7			37	7.1		2.2[1/]	3.2
8			36	6.9			3.2
9			30	6.6			3.4
10			34	6.3			3.6
11			31	6.1			3.4
12			26	5.8		2.8[1/]	3.4
13			26	6.3		3.0	3.4
14			20	7.1		2.6	3.4
15			18	8.2		3.2	3.4
16			17	7.9		2.6	3.4
17			17	6.9		2.2	3.4
18			17	7.1[1/]		2.0	3.0
19		51[1/]	21			1.8	3.0
20		47	21			1.8	2.8
21		42	17			1.8	2.8[1/]
22		37	15			2.0	
23		33	15			1.8	
24		31	15			1.8	
25		31	15			1.6	
26		29	14			1.4	
27		31	13			1.2	
28		34	10			1.2	
29		48	12			1.2	
30		52	11			1.4	
31			10			1.4	
MEAN		38.8	22.6				2.9
AC-FT		924	1388				

[1/] No record before April 19, June 19 through July 31, August 8 through August 11, and after September 21.

Water Supply. The water supply for Shackleford Creek comes from snowmelt run-off, springs and seepage, and supplemental stored water released from Campbell Lakes, near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 31 square miles, located in the heavily forested, steep mountainous terrain of the north-easterly slopes of the Salmon Mountains. It varies in elevation from about 7,000 feet along its west rim to about 3,000 feet at the foot of the slopes bordering Quartz Valley. Snowmelt runoff is normally sufficient to supply all demands until the middle of July. The supply then usually decreases until the first part of August when water is released from Cliff and Campbell Lakes to maintain sufficient flow in the Shackleford Ditch.

Method of Distribution. Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. Shackleford Ditch, the largest of these ditches, has a length of about 6 miles and a capacity of about 12 cfs.

Shackleford Creek 1992 Distribution

The season started on Shackleford Creek with all users receiving full rights.

Releases were started from Campbell Lake to the Shackleford Ditch on July 1. One hundred percent of all second priority allotments was available through September 30.

Sniktaw Creek

The Sniktaw Creek service area is in western Siskiyou County, seven miles west of the town of Fort Jones in Scott Valley. It encompasses an agricultural area about three miles long and one mile wide, running from south to north. Elevations in the Sniktaw watershed range from 6,700 feet in the southwest to about 2,650 feet at the confluence of Sniktaw Creek and Scott River.

Basis of Service. The Sniktaw Creek service area was added to the Scott River watermaster service area on April 1, 1981. Water is distributed under the provisions of a statutory adjudication which resulted in Decree No. 30662, Siskiyou County Superior Court, dated January 16, 1980.

The allotments are defined in the Scott River Decree, Schedule B 38, which has three priority allotments.

Water Supply. The water supply for Sniktaw Creek comes from snowmelt, springs, and seepage. Water from Shackleford Creek (Diversions 3, 17, 19, 20, and 21) supplements available water in Sniktaw Creek.

Return water from Heide's Shackleford Creek Ditch, Diversion 3, commingles with natural flow of Sniktaw Creek. After leaving the Heide property and entering Sniktaw Creek, it is allotted as set forth in Schedule B 38 (Sniktaw Creek) from Diversions 665 to 679.

Heide may use tailwater from Shackleford Creek Ditch, Diversion 3, for irrigation of 27 acres under License 10875 issued on Application 22882 for use on former Indian lands. The right may be exercised only at times that Heide is receiving water from Shackleford Creek Ditch, Diversion 3, or at times that all Sniktaw Creek allotments are being filled.

Sniktaw Creek 1992 Distribution

All priorities were filled until May 20; by June 14, the water supply had receded to 50 percent of second priority. The Heide Ditch from Shackleford Creek was closed May 30.

Wildcat Creek

The Wildcat Creek service area is in western Siskiyou County near the town of Callahan. The major sources of water are Wildcat Creek, which flows through the service area, and foreign water imported from Jackson Creek, Grizzly Creek and Camp Gulch.

Basis of Service. The Wildcat Creek watermaster area was started May 1, 1980. Water is distributed under a statutory adjudication that resulted in Decree No. 30662, Siskiyou County Superior Court, dated January 16, 1980. The allotments are defined in the Scott River Decree, Schedule B 10.

Method of Distribution. Irrigation is done mainly by wild flooding of permanent pasture. Water is distributed by ditches and laterals to the place of use.

Wildcat Creek 1992 Distribution

The water supply was normal. Import water from Sugar Creek and Jackson Creek helped supply water to the Kerrigan Ranch, and runoff from the Kerrigan Ranch helped supply the Struckman Ranch. Recorders were installed on the Parshall flumes at points A and B, described in the decree. By July 15, the natural flow of Wildcat Creek was down to 1.0 cfs. Recorders were installed on the Jackson Creek Ditch and at Kerrigan's diversion from Wildcat Creek to determine the natural flow of Wildcat Creek.

Oro Fino Creek

The Oro Fino Creek service area is in southwestern Siskiyou County near the town of Greenview. It encompasses an agricultural area about 5 miles long and 0.5 mile wide, running from south to north. Elevations along Oro Fino Creek range from 2,900 feet near the headwaters to 2,700 feet at the confluence of Oro Fino Creek and the Scott River.

Basis of Service. The Oro Fino Creek service area was added to the Scott River watermaster service area on July 1, 1984. Water is distributed under the provision of the statutory adjudication which resulted in Decree 30662, Siskiyou County Superior Court, dated January 6, 1980.

Water Supply. The water supply for Oro Fino Creek above Diversion 606 is derived from Kidder Creek. Springs feed Oro Fino Creek below Diversion 607. Allotments are diverted from underflow by means of offset wells or sumps at Diversions 606, 606a, 611, and 612. The allotments at Diversions 607, 608, 609, 610, 613, 613a, 614, 615, and 616 may be diverted, at the option of the claimant, from surface flow or from underflow by means of offset wells or sumps or a combination of both with the provision that when surface flow in the creek (at the county road at the O. Lewis property) recedes to 3 cfs, the percentage or amount of the surface flow reaching the point of diversion of each of the following claimants shall be bypassed at the claimant's lower property line: Friden, 51 percent; O. Lewis, 96 percent; and Luckensmeyer, all flow in excess of 1.31 cfs.

The ground water table along Oro Fino Creek is recharged mainly by Kidder Creek Diversions 446 and 448 which supply surface water to the Foster and Friden lands. Kidder Creek streamflow for these diversions is mainly snowmelt runoff.

Oro Fino Creek 1992 Distribution

The water supply of Oro Fino Creek was normal. On August 1, water was down to zero flow to the lower users.

SHASTA RIVER WATERMASTER SERVICE AREA

The Shasta River service area is in the central part of Siskiyou County. Willow Creek and Cold Creek, formerly in the Klamath River watermaster service area, were incorporated into the Shasta River watermaster service area in 1983.

The water supply comes from North Fork Sacramento River, Shasta River and its several tributaries. The upper reaches of the service area are served by two groups of tributaries. One group, comprising Boles, Beaughan, Carrick, and Jackson creeks, rises on the northwestern slopes of Mount Shasta. The other group, consisting of Dale and Eddy creeks, and Shasta River west of Interstate 5, rises on the eastern slopes of the Trinity Mountains. All these streams join the mainstem Shasta River above Lake Shastina (Dwinnell Reservoir) near the town of Weed. As the Shasta River flows northward from Lake Shastina to its confluence with the Klamath River, north of Yreka, it is joined by three major tributaries. Parks Creek, rising on the eastern slopes of the Trinity Mountains, enters from the west near the town of Gazelle. Big Springs Creek, from Big Springs Lake, enters from the east about a mile below Parks Creek. Little Shasta River, rising on the slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

Shasta Valley is about 30 miles long and 30 miles wide. In the center of the valley are many small, cone-shaped, volcanic hillocks that divide the area into separate parts. Because of these volcanic formations, only about 141,000 acres of about 507,000 acres in the valley are irrigable. The valley floor elevation averages about 3,000 feet.

Willow Creek is in Siskiyou County, about 10 miles northeast of Montague. It is the major source of water to the service area and rises on the west slope of the 7,800-foot Willow Creek Mountain. It flows northwest through about 11 miles of rolling hills to its confluence with the Klamath River. The Willow Creek area is about 8 miles long by 1 mile wide and varies in elevation between about 2,600 and 4,000 feet.

Cold Creek is just south of Copco Lake, a hydroelectric power reservoir on the Klamath River in the extreme northern part of Siskiyou County. Yreka is 30 miles southwest of the Cold Creek stream system. Elevations within the Cold Creek watershed range from 2,900 feet to about 6,500 feet.

Basis of Service

The Shasta River watermaster service area was created on March 1, 1933. The appropriative water rights on this stream system were determined by a statutory adjudication that resulted in Decree No. 7035, Siskiyou County Superior Court, dated December 29, 1932.

The decree lists the water rights of the entire stream system by the names of the users. The rights supervised by the watermaster are broken down into eight separate schedules. These are: Shasta River above its confluence with

Big Springs Creek - 43 priorities; Boles Creek - 20 priorities; Beaughan Creek - 5 priorities; Jackson Creek - 7 priorities; Carrick Creek - 13 priorities; Parks Creek - 25 priorities; Shasta River below its confluence with Big Springs Creek and Big Springs Creek and tributaries - 29 priorities; and Little Shasta River - 7 priorities. Additional schedules include Willow Creek, Yreka Creek, and miscellaneous independent springs, gulches, and sloughs, but these are not included in the service area.

Montague Water Conservation District has appropriative rights for storage of Shasta River and Parks Creek water in Lake Shastina. By agreement with the District, five nearby downstream users receive water from storage in lieu of their decreed continuous flow allotments. The watermaster handles the reservoir releases for these users. A peculiarity of the Shasta River decree is that it defines only appropriative rights and excludes a number of riparian users on the Lower Shasta River. Holders of these riparian rights are not regulated by the watermaster.

Water Supply

The water supply for Shasta Valley comes from snowmelt runoff, springs and underground flow, and occasional summer thundershowers. In several parts of the stream system, the springs from underground flow are enough to supply most allotments throughout the season. Much of the underground flow comes from the northern slopes of Mount Shasta, which rises to 14,162 feet at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is little surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River get much of their water from snowmelt runoff, usually enough to supply allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Lake Shastina, Big Springs, and Lower Shasta River have enough runoff from springs to supply many of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are in Tables 29 through 32. The daily mean storage in Lake Shastina is in Table 33.

Method of Distribution

Irrigation of permanent pasture and alfalfa lands is mainly by wild flooding. Much of the return water is recaptured and used on lower pasture lands. Sprinkling systems are used for irrigating some alfalfa and grain lands. Water is routed by diversion dams and then carried by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 60 cfs and a length of about 14 miles. Water is also supplied to ditch systems by pumped diversions, the three largest belonging to two irrigation districts and a private water users' association. Some riparian lands are also served by pump diversions.

Many privately-owned storage reservoirs are in the area. Water from these reservoirs supplements continuous-flow allotments.

Because of their large rights, the watermaster's close surveillance of Grenada and Big Springs Irrigation Districts and Shasta River Water Users Association is very important, particularly in dry years. Control of releases from Montague Water Conservation District's Dwinnell Reservoir (Lake Shastina) is another responsibility of the watermaster. This includes measurement of deliveries of stored water to users just below the dam. Control of releases from Hammond Lake is also a duty of the watermaster as of 1989.

1992 Distribution

Watermaster service began April 1 in the Shasta River wastermaster service area and ended September 30 with Keithal B. Dick, Water Resources Technician II, as watermaster. Lester L. Lighthall, Water Resources Technician II, was called into service on April 15, and finished on September 30. Mr. Lighthall's services were needed to assist Mr. Dick because of the record low water supply, which was less than 75 percent of normal, and the unusually dry conditions during the first part of the year.

Parks Creek

Flows were well below normal all season. Irrigation demands were only filled a short time in the last part of June, when light rains increased the flow. Very little excess was diverted to Dwinnell Reservoir. Flows decreased and third priorities were out by July 15. Flows continued to decrease, with less than 1.0 cfs by the middle of August.

Upper Shasta River

Regulation was required from April 1. Shasta River was extremely low until the last part of June, when rains occurred, and the flow in upper Shasta River was enough to fill all priorities until July 8. Flow decreased to 30 percent of third and fourth priorities in August and remained near that level until the last part of September. Lower priorities below the Yreka Ditch received return flow and inflow from springs after July 8.

The Hammond Reservoir Irrigation Association, owners of the Hammond Reservoir, was added to the Shasta River watermaster service area in 1988. The 348-acre-foot reservoir has storage licenses 5261 and 6531 for water diverted from the North Fork Sacramento River. The stored water is released to the Shasta River and then diverted into diversions 3, 4, 4 west, 5, 6, 7, and 19. The releases are measured at a weir located downstream from the reservoir. The reservoir filled and remained full until June 24; releases started June 24. The reservoir was drained by September 18. Diversions from North Fork Sacramento River were started on May 10, and ended July 14.

Boles Creek and Shasta River to Lake Shastina (Dwinnell Reservoir)

Boles Creek and this portion of Shasta River are operated as one stream under a long-standing oral agreement among the water right holders. The water is distributed on a correlative, equal-priority basis. Water was set to 100 percent of all rights on July 8. Flows decreased to 55 percent of rights by mid-July and remained between 55 and 60 percent for the rest of the season.

Beaughan Creek

With close regulation of the upper users, all priorities were satisfied for the entire season.

Carrick Creek

Carrick Springs supplied enough water to satisfy all 13 priorities for the entire season with close regulation.

Little Shasta River

There was less than average snowmelt runoff again this season on the Little Shasta River. The flows started at 100 percent of fourth priority and remained until May 1, increased to 100 percent of sixth priority, then declined to 60 percent of sixth priority on May 10. On July 1, the available flow provided 100 percent of fourth priority, declined to 50 percent of fourth priority by August 1, and remained at that level until September 30.

Dwinnell Reservoir

Storage in Dwinnell Reservoir on March 1 was 12,210 acre-feet and increased to 13,860 acre-feet by March 20. On September 30, storage was down to 800 acre-feet. By agreement with the Montague Water Conservation District, owner of Dwinnell Reservoir, water users on Shasta River below the reservoir received stored water on demand.

Deliveries to Natural Flow Water Right Owners Below Dwinnell Reservoir - 1992

Name of Water Right Holder	Allotment (in acre-feet)	Amount Delivered from Dwinnell Reservoir (in acre-feet)
Wagner, Richard W.	1,200	1,200
Flying L Ranch	198	0
Hole-in-the-Ground Ranch	596	596
Seldom Seen Ranch	924	924
Hidden Valley Ranch	464	260
	3,382	2,980

Big Springs Lake

Big Springs Irrigation District used their own wells, and no water was received from Big Springs Lake. An agreement between E. J. Louie, A. H. Newton, Jr., and

Montague Water Conservation District was established during the winter of 1986. They agreed that when the flows of Big Springs recede from 17.5 cfs to 10.0 cfs, Montague Water Conservation District would do the following:

- Turn off the Basey pumps until the flow of Big Springs was 17.5 cfs or pay A. H. Newton, Jr. the additional power cost to use his own pumps.

- If flows of Big Springs fall below 10.0 cfs, Montague Water Conservation District will shut off the Basey pumps until flows return to above 10.0 cfs.

From April 1 until the first of September, daily observations were made. On March 20, Montague Water Conservation District was required to shut off one Basey pump; eventually, all three Basey pumps had to be turned off most of the irrigation season.

Lower Shasta River

The flows in the Lower Shasta River were enough to supply all priorities until April 5. On this date, Grenada Irrigation District had to shut off one pump. Water supply fluctuated at times, and Grenada Irrigation District pumps were shut off for the remainder of 1992 water season.

Willow Creek (North of Montague)

Basis of Service. Willow Creek has had a long history of litigation. The present basis of service was initiated in 1949 when the Department of Public Works, Division of Water Resources was asked to referee a civil suit. The matter was not finalized by a decree until 1972. The issues involved were reopened in 1971, and by Decree No. 24482, dated April 28, 1972, the Siskiyou County Superior Court appointed DWR to supervise distribution of water in accordance with an earlier agreement between the users which defined their respective rights. Currently, Willow Creek is part of the Shasta River Watermaster Service Area.

There are three water users in the service area. Distribution is on a fractional basis until the flow drops to a specified amount below the upper two users. At that time, the total flow is rotated between the upper two users.

Water Supply. The main source of water for the Willow Creek stream system is from snowmelt. Runoff from the snowmelt begins late in March or early April and is usually depleted by June. Thereafter, the streamflow decreases rapidly until about July 25. From then until the rainy season begins, the flow remains at a low-flow stage sufficient to provide domestic and stock-watering purposes to the two upper users.

Method of Distribution. Both sprinkler and flood irrigation are used in the Klamath River service area. The upper water user has the option of using gravity diversions for either flood or sprinkler irrigation. The middle user relies entirely on runoff from the upper user's flood irrigation. The lower user in the area uses both flood and sprinkler irrigation during the early season when the supply is abundant. As the supply dwindles, the remaining water is pumped from a sump to the sprinkler system.

1992 Distribution. No water reached the lower users this season due to the drought.

Cold Creek

Basis of Service. A statutory adjudication of Cold Creek in 1978 ordered DWR to provide watermaster service at Diversions 2, 3, and 4, and at the division weir on the Silva-Lennox Ditch. Watermaster service began April 1, 1981.

Water Supply. The water supply of the Cold Creek stream system satisfied requirements until July. Only a portion of full entitlements were satisfied thereafter.

Method of Distribution. Both sprinkler and flood irrigation are used in Cold Creek service area.

1992 Distribution. Flow is from springs and remained very constant all season. No record was kept this season; automatic split worked well.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 29

1992 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER NEAR YREKA[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	139	84	33	19	54	15	19
2	136	27	33	19	42	12	27
3	139	26	32	26	34	10	22
4	141	24	31	22	31	11	18
5	143	22	20	15	37	13	20
6	144	29	12	18	35	12	26
7	141	48	23	17	29	8.4	29
8	134	37	19	18	25	8.3	29
9	152	25	27	22	26	9.5	32
10	138	25	34	15	27	8.8	32
11	109	27	28	13	27	11	28
12	117	26	29	16	23	11	28
13	121	32	19	28	18	9.6	26
14	121	34	19	34	18	7.1	28
15	121	38	15	39	21	6.6	32
16	128	33	17	32	24	6.4	27
17	134	45	18	25	29	8.9	30
18	132	42	19	32	36	8.7	38
19	128	44	31	30	33	6.2	34
20	128	43	42	28	31	7.6	38
21	127	41	34	25	22	11	40
22	121	28	38	23	14	13	42
23	119	26	23	24	10	16	40
24	117	28	15	47	11	29	40
25	108	23	21	43	15	39	39
26	100	23	19	37	16	31	45
27	99	22	15	42	20	8.5	50
28	101	27	19	28	20	8.1	44
29	101	18	27	39	21	9.5	38
30	97	24	26	42	15	13	38
31	102		22		16	13	
MEAN	124	32.4	24.5	27.3	25.2	12.3	32.6
AC-FT	7610	1930	1510	1620	1550	758	1940

[1/] USGS Station

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 30

1992 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER NEAR EDGEWOOD

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		37	40	7.0	9.0	1.4	3.4
2		32	30	6.6	7.1	1.3	2.9
3		31	24	5.3	6.0	1.3	3.1
4		28	22	4.9	5.2	1.1	2.9
5		20	23	4.4	4.5	1.1	2.9
6		16	25	3.8	4.4	1.1	2.7
7		12	32	3.3	3.6	1.2	2.5
8		9.6	39	3.3	3.4	1.3	2.7
9		10	38	2.9	3.2	1.4	2.4
10		25	30	2.7	3.0	1.3	2.5
11		33	25	2.5	2.7	1.4	2.4
12		65	21	3.5	3.4	1.2	2.6
13		99	19	3.6	3.2	1.2	2.6
14		63	18	5.1	2.8	1.0	2.7
15		48	20	5.7	2.5	1.0	2.4
16		50	18	5.2	2.6	1.2	2.2
17		154	16	4.0	2.4	1.3	2.1
18		107	16	4.5	2.9	1.2	2.0
19		74	17	4.0	2.9	1.3	2.0
20		58	25	3.6	2.5	1.0	2.1
21		50	18	3.2	2.3	0.9	2.1
22		41	14	2.9	2.1	1.1	1.8
23		30	11	2.4	2.0	1.2	1.6
24	25[1/]	23	10	2.6	2.1	1.5	1.7
25	24	19	13	9.6	2.1	1.9	1.7
26	25	23	15	6.6	1.9	1.7	2.1
27	26	22	13	4.8	1.9	1.6	2.5
28	26	22	10	4.2	1.9	1.5	2.9
29	28	31	8.9	6.1	1.8	2.0	3.0
30	32	60	8.4	7.1	1.7	2.0	2.8
31	33		7.9		1.4	2.7	
MEAN	27.4	43.1	20.2	4.5	3.2	1.4	2.4
AC-FT	434	2564	1244	269	195	84	145

[1/] No record before March 24.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 31

1992 Daily Mean Discharge
(In cubic feet per second)

PARKS CREEK ABOVE EDSON-FOULKE YREKA DITCH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1				6.6	9.3	1.5	0.9
2				6.3	6.0	1.4	0.9
3				6.0	7.5	1.4	0.9
4				5.5	8.1	1.4	0.9
5				4.9	7.8	1.3	0.9
6				3.9	7.5	1.3	0.9
7				3.9	7.5	1.2	0.9
8				3.9	7.2	1.2	0.9
9				3.9	6.6	1.2	0.9
10				3.9	6.6	1.1	0.9
11				3.9	6.3	1.1	1.4
12				4.7	6.3	1.0	1.4
13				4.9	6.3	1.0	1.1
14				5.5	6.0	1.0	0.9
15				5.7	5.7	0.9	0.9
16				5.1	4.9	0.9	0.9
17				4.9	3.9	0.8	0.9
18				6.6	2.9	0.8	0.9
19				5.5	2.1	0.8	0.9
20				5.1	1.8	0.7	0.9
21				4.7	1.8	0.7	0.9
22				4.3	1.8	0.7	1.0
23				3.9	1.8	0.7	1.1
24				3.7	1.8	0.7	1.2
25				5.1	1.8	0.7	1.1
26			9.3[1/]	4.5	1.7	0.7	1.0
27			8.7	4.1	1.7	0.7	1.0
28			8.1	3.9	1.6	0.7	1.0
29			7.8	6.3	1.6	0.7	1.0
30			7.5	6.9	1.6	0.7	1.0
31			6.9		1.5	0.7	
MEAN			8.0	4.9	4.5	1.0	1.0
AC-FT			96	294	276	59	58

[1/] No record before May 26.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 32

1992 Daily Mean Discharge
(In cubic feet per second)

SHASTA RIVER AT MONTAGUE-GRENADA HIGHWAY BRIDGE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		16[1/]	26	20	31	16	24
2		13	31	12	27	13	23
3		12	31	16	24	14	23
4		23	26	23	24	16	22
5		23	23	20	23	12	24
6		36	16	20	22	12	31
7		36	24	22	22	16	33
8		24	29	23	20	13	33
9		23	41	17	24	11	33
10		22	33	19	26	14	31
11		20	33	22	26	14	29
12		23	24	27	19	13	26
13		29	23	31	19	13	24
14		29	16	36	20	12	29
15		24	14	36	26	11	24
16		23	13	19	27	10	23
17		31	14	23	38	11	31
18		29	23	23	38	11	27
19		31	20	23	36	13	27
20		29	17	22	33	19	26
21		23	24	17	27	16	34
22		17	22	17	22	20	34
23		20	12	20	20	20	31
24		19	12	23	17	45	36[1/]
25		17	13	27	19	45	
26		17	10	16	22	16	
27		12	13	16	22	13	
28		16	24	12	27	11	
29		12	24	16	22	16	
30		23	24	20	17	12	
31			20		14	22	
MEAN		22.5	21.9	21.3	25.2	16.2	28.2
AC-FT		1337	1345	1268	1495	995	1345

[1/] No record before April 1 and after September 24.

SHASTA RIVER WATERMASTER SERVICE AREA
1992 Season

TABLE 33

LAKE SHASTINA (DWINNELL RESERVOIR)
DAILY MEAN STORAGE IN ACRE-FEET

DAY	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	400	800	N/R	3,940	6,080	12,210	13,530	12,100	8,470	4,540	1,630	660
2	400	820	N/R	4,000	6,080	12,320	13,530	12,000	8,290	4,480	1,600	640
3	420	840	N/R	4,060	6,160	12,430	13,420	11,900	8,110	4,420	1,570	620
4	440	880	2,360	4,120	6,160	12,540	13,310	11,800	7,750	4,360	1,540	640
5	440	900	2,400	4,600	6,240	12,760	13,090	11,700	N/R	4,290	1,480	640
6	460	920	2,440	4,840	6,240	12,870	12,980	11,600	N/R	4,180	1,550	660
7	460	960	2,480	4,970	6,320	12,980	12,870	11,500	N/R	4,120	1,550	660
8	480	960	2,520	5,040	6,320	13,090	12,760	11,400	N/R	4,060	1,550	660
9	500	N/R	2,560	5,110	6,400	13,090	12,540	11,300	N/R	4,000	1,550	680
10	520	N/R	2,600	5,180	6,850	13,200	12,540	N/R	N/R	3,940	1,420	680
11	520	N/R	2,650	5,250	7,570	13,200	12,430	N/R	N/R	3,820	1,360	700
12	540	N/R	2,700	5,320	8,560	13,200	12,430	N/R	N/R	3,700	1,300	700
13	560	1,270	2,700	5,320	9,010	13,310	12,430	11,000	N/R	3,520	1,300	700
14	580	N/R	2,800	5,390	9,700	13,310	12,430	10,800	N/R	3,400	1,270	720
15	580	N/R	2,800	5,390	10,300	13,420	12,430	10,700	N/R	3,280	1,240	720
16	600	N/R	2,850	5,460	10,500	13,640	12,320	10,500	N/R	3,160	1,210	720
17	620	N/R	2,900	5,460	10,700	13,750	12,430	10,400	6,080	3,150	1,210	740
18	620	N/R	3,000	5,530	10,900	13,750	12,540	10,300	5,920	2,950	1,180	740
19	620	N/R	3,100	5,530	11,100	13,750	12,650	10,200	5,840	2,850	1,150	740
20	640	1,750	3,160	5,600	11,300	13,860	12,760	10,000	5,760	2,750	1,120	760
21	640	N/R	3,280	5,600	11,400	13,860	12,760	9,900	5,760	2,600	1,090	760
22	660	N/R	3,280	5,680	11,600	13,860	12,760	9,800	5,530	2,480	1,060	760
23	660	N/R	3,340	5,680	11,700	13,860	12,650	9,600	5,460	2,400	1,000	780
24	680	N/R	3,340	5,760	11,800	13,860	12,650	9,500	5,320	2,320	1,000	780
25	700	N/R	3,400	5,840	11,900	13,860	12,540	9,400	5,180	2,200	980	780
26	700	N/R	3,520	5,840	11,900	13,860	12,430	9,200	5,040	2,110	960	780
27	720	2,050	3,520	5,920	12,000	13,750	12,320	9,100	4,970	1,990	860	780
28	740	N/R	3,640	5,920	12,100	13,750	12,320	9,010	4,840	1,930	800	800
29	760	N/R	3,700	5,920	12,210	13,750	12,320	8,920	4,720	1,810	760	800
30	780	N/R	3,820	6,080		13,640	12,210	8,740	4,600	1,750	720	800
31	780		3,880	6,080		13,640		8,560		1,660	680	

N/R - No record.

SURPRISE VALLEY WATERMASTER SERVICE AREA

The Surprise Valley service area is in Modoc County, east of the Warner Mountains. Eleven individual stream systems rising on the eastern slope of the Warner Mountains supply water to the area. These are fed by snowmelt runoff and run in fast, steep courses down the eastern slope of the Warner Mountains to the valley floor where numerous scattered diversion ditches convey water to the irrigated lands.

Pine Creek, southeast of Alturas, was included in the Surprise Valley watermaster service area in 1988.

Basis of Service

The Surprise Valley watermaster service area was created January 10, 1939, and includes Mill, Soldier, Pine, Cedar, Deep, Owl, Rader, and Emerson creeks, all of which once had individual watermaster service. Also, service was started on Eagle Creek at that time. Bidwell Creek was added to the service area March 16, 1960, and Cottonwood Creek was added in 1977. Each of the eleven stream systems in Surprise Valley is under separate decrees.

The Pine Creek agreement established water rights for Pine Creek, which is located on the west slope of the Warner Range, on November 22, 1923. This stream was added to the South Fork Pit River area on January 22, 1935. Pine Creek Reservoir, a small reservoir above all diversions, was originally used for power generation. Now a recreation site, it has a small water right but is not in the service area. Pine Creek was added to the North Fork Pit River area on July 1, 1982 and changed to the Surprise Valley watermaster service area in 1988. The Pine Creek agreement established two priorities.

See Table 34, for specific data regarding the decrees and water rights on the individual creeks.

Water Supply

The water supply comes almost entirely from snowmelt, with only minor spring-fed flows occurring late in the season. Due to the steep eastern slope of the Warner Mountains, there are no likely storage sites on the service-area streams. Because of the lack of such regulatory storage, the available water supply at any specific diversion point may vary considerably within a few hours. Wide daily temperature changes cause great changes in the rate of snowmelt runoff. This situation is worsened by the relatively short, steep drainage area. Also, occasional summer thundershowers may cause a creek to discharge a flow of mammoth proportions for several hours. These flashes can cause considerable damage from washouts and debris deposition but are of such short duration that little or no beneficial use can be made of the water. The water supply for Pine Creek is derived mostly from snowmelt runoff. Therefore, runoff is usually small in the early spring, increases to a peak in May

as temperatures rise, and then gradually decreases throughout the remainder of the season. Water users supplement their irrigation supplies from other sources whenever possible.

Records of the daily mean discharge at several stream gaging stations within the service area are presented in Tables 35 through 47.

Method of Distribution

Continuous-flow distribution is used on most creeks, but water is rotated among some users in accordance with either decree schedule or by mutual agreement.

Alfalfa and meadow hay, the major crops in the valley, are irrigated by sprinklers and wild flooding, although some lands depend upon subsurface irrigation. A few of these systems work by gravity, but most use pumps with the surface water supplemented by deep wells. Many additional acres have been put into production during the past few years through the use of deep wells. Only surface water supplies are under State watermaster service.

To facilitate distribution of irrigation water, construction of permanent diversion dams, headgates, and measuring devices has been encouraged in recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do help a lot to solve water measurement and distribution problems.

1992 Distribution

Watermaster service began in the Surprise Valley watermaster service area on March 19 and continued until September 30. Kevin L. Dossey, Associate Engineer, Water Resources, was watermaster.

The 1992 irrigation season was the driest since watermasters began keeping records about 60 years ago. The Warner Mountains snowpack water equivalent was only about 40 percent of average on April 1, 1992. May 1 Soil Conservation Service snow measurements showed that only two percent of the April 1 average snowpack remained. Creek runoff totals were less than half of average. Individual creek totals ranged from 16 to 43 percent of 1991 totals.

Bidwell Creek

Total stream runoff from April 1 through September 30 was 2,302 acre-feet. There was never more than about half of first priority water all year. A rotation schedule was set up for the city users Upper Ditch #13. Considerable difficulty was experienced regulating flows on Ditches 10, 11, 13, and 15. Flow on September 30 was 0.9 cfs.

Mill Creek

Total stream runoff from April 1 through September 30 was 1,321 acre-feet. Full priority water was never available this year. Flows dropped to second priority in late May and to first priority by mid-June. Flow on September 30 was 0.6 cfs.

Soldier Creek

Total stream runoff from March 19 through September 30 was 1,012 acre-feet. The upper and lower users received beneficial use from only one rotation each. At the end of the rotation period on June 19, flow was 0.8 cfs. On September 30, flow was down to 0.3 cfs.

Pine Creek

Total stream runoff from March 20 to June 30 was 222 acre-feet. The flow remained in the Cressler Ditch for all but 15 days during which it was turned down the channel. No rotation allotments were filled. Flow in the creek ceased by May 6, except when the late June rainstorm produced flows for about a week.

Cedar Creek

Total stream runoff from April 1 through September 30 was less than 300 acre-feet. Except during rainstorms, streamflow was never higher than 3 cfs and remained in Ditch 1 until the flow ceased completely in July. No water was diverted from Thoms Creek to Cedar Creek this year.

Deep Creek

Total stream runoff from April 1 through September 30 was 561 acre-feet. The flows were never high enough to send water down the channel this year. By mid-May, only stock water was available in Deep Creek. On September 30, flow was 0.2 cfs in South Deep Creek and 0.1 cfs in North Deep Creek.

Cottonwood Creek

Total stream runoff from April 1 through September 30 was 1,152 acre-feet. Due to the low flows, water rotation between Tracts 243, 245, 246, and 109 didn't begin until May 5. Rotation ended July 8. Flow on July 8 was 1.6 cfs and by September 30, flow was 0.2 cfs.

Owl Creek

Total stream runoff from April 1 through September 30 was 1,542 acre-feet. Flow on September 30 was 0.7 cfs.

Rader Creek

Total stream runoff from April 1 through September 30 was 1,007 acre-feet. Water was not diverted to the Cockrell Ditch this year. Flow on September 30 was 0.4 cfs.

Eagle Creek

Total stream runoff from April 1 through September 30 was 1,277 acre-feet. Third priority water users only received water for one week this year. By early June, only first priority water was available. Flow on September 30 was 0.7 cfs.

Emerson Creek

Total stream runoff from April 1 through September 30 was 714 acre-feet. Only first and a fraction of second priority water was available this year. Streamflow had reduced to first priority by May 25. Flow on September 30 was 1.1 cfs.

Pine Creek Near Alturas

Total stream runoff from April 1 through September 30 was 3,186 acre-feet. The diversion from Parker Creek to Dorris Reservoir was terminated on April 16. At this time, the Modoc Wildlife Refuge began receiving half of the flow of Pine Creek.

TABLE 34

DECREES AND RELATED DATA - SURPRISE VALLEY STREAMS

Stream	Modoc County Superior Court Decree No.	Date	Type[a]	Service Area Created	No. of Water Right Owners	Total Cfs	Remarks
Bidwell	6420	1-13-60	S	3-16-60[b]	46	63.74	(Schedule 3) 3 priorities March 15-July 19. (Schedule 4) 5 priorities July 10-September 30. If no water passing version No. 23 September 30-March 14, 1st priority provisions of Schedule 4 apply
Mill	3024	12-19-31	CR	12-30-31	38	37.13	One priority on Brown Creek, tributary to Rutherford Creek, 7 priorities on Rutherford Creek, tributary to Mill Creek, 1st and 2nd for year-round use, 3rd and 4th April through September.
Soldier	2045	11-28-28	CR	9-11-29	13 4[c]	33.50 4.37	Starting March 19 each year, lower users receive water for 4 13-day periods alternating with upper users who receive water for 4 10-day periods, ending June 19. 7 priorities during lower users periods, 8 during upper users periods and 12 for rest of the year. Appropriative License 1566, 1613, 1648, and 1850.
Pine near Cedarville	3391	12-07-36	CR	1-13-37	5 1[c]	[d] 0.08	One full rotation totalling 693 AF. Rotation continues until flow decreases to 4 cfs, then all water goes to Cal-Vada Ranch until flow decreases to 1.60 cfs, then all water goes to the R. Bordwell Ranch.
Cedar	1206 2343[d]	5-22-01 2-15-23	CA CA	9-11-29	12	28.90[d]	Water rights established by these two decrees and an agreement signed by all users. No. 1206 set 1st and 2nd priorities; No. 2443 3rd priority and agreement the 4th. 28.90 cfs includes 5.00 cfs imported from Thoms Creek on west slope of Warner Mountains.
Deep	3101	1-25-34	CR	12-29-34	11	29.37	Schedule 2 establishes 5 priorities, year-round.
Cottonwood	6903	12-01-64	CA	7-01-77[b]	8	[d]	Water rights based on a percentage of flow in an equal priority.
Owl	2410	5-29-29	CA	9-11-29	8	41.70	21 priorities; all year round but 8th priority, under which each of 3 owners receives his allotment for an 8-day period. Appropriative License No.2842, 3.54 cfs.
Rader	3626	6-04-37	CR	6-12-37	6	21.00	7 priorities. 7th is for surplus water. Diversions No. 1, 3, 6, and 7 have seasonal limitations.
Eagle	2304 3284	4-05-26 11-05-37	CA CR	1-10-39	36	30.57	Decree No. 3284 added rights in all priority classes, and established 4 classes. 4.50 cfs right of Betford Corp. is for use March 1 to July 1. Eagleville 'town users', Schedule 2 may divert through Gee & Grider ditches March 16 to October 14 each year. Set 1st priority rights of Gee & Grider ditches, Par. XVII & XVIII, for use April 15 to October 1.
Emerson	2840	3-25-30	CR	4-11-30	10	24.65	4 priorities, 1st is for year-round use, others April 1 to September 30.
Pine near Alturas[e]	----	11-22-33	A	1-22-35	16	60.00	Surplus flow into Doris Reservoir. Tributary to South Fork Pit River.

[a] S-Statutory, CR-Court Reference, CA-Court Adjudication, A-Agreement
[b] Added to existing Surprise Valley service area.
[c] Appropriative rights junior to the decreed rights.
[d] See remarks.
[e] Pine Creek is on the west slope of Warner Range near Alturas.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 35

1992 Daily Mean Discharge
(In cubic feet per second)

BIDWELL CREEK NEAR FORT BIDWELL

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	7.4	12	18	5.6	5.8	1.3	1.1
2	7.1	13	16	5.4	4.4	1.3	1.0
3	6.9	13	15	5.0	3.8	1.2	1.1
4	6.7	14	15	4.7	3.3	1.2	1.3
5	6.8	12	15	4.3	3.3	1.2	1.3
6	7.1	11	15	4.2	3.2	1.2	1.3
7	7.1	10	15	4.0	3.1	1.2	1.3
8	6.4	10	15	3.8	2.8	1.2	1.2
9	5.8	13	15	3.6	2.7	1.2	1.2
10	5.7	27	13	3.3	2.8	1.2	1.2
11	5.9	22	12	3.2	3.5	1.3	1.1
12	7.6	23	12	3.7	4.1	1.3	1.1
13	8.8	24	11	4.1	3.0	1.5	1.2
14	9.3	21	11	4.5	2.7	1.3	1.2
15	9.5	20	10	3.8	2.6	1.3	1.1
16	9.2	21	9.9	3.5	2.4	1.4	0.9
17	8.9	35	9.6	3.2	2.2	1.3	0.9
18	8.3	30	9.3	3.4	2.2	1.1	0.9
19	8.0	26	8.9	3.3	2.1	0.9	0.9
20	7.9	24	9.1	2.8	2.2	0.9	0.9
21	8.1	22	8.7	2.6	2.2	0.9	0.9
22	8.5	21	8.3	2.0	2.2	1.2	0.9
23	9.0	19	7.9	2.1	2.2	1.5	0.7
24	9.5	17	7.5	2.1	2.2	1.5	1.0
25	9.8	17	7.5	2.8	2.2	1.3	1.2
26	10	16	7.5	3.1	2.0	1.2	1.2
27	11	16	6.9	2.4	1.9	1.1	1.2
28	11	16	6.6	2.6	1.7	1.0	1.2
29	10	17	6.3	4.7	1.8	1.0	1.1
30	11	19	6.0	8.4	1.8	0.9	0.9
31	12		5.5		1.6	1.0	
MEAN	8.4	18.7	10.8	3.7	2.7	1.2	1.1
AC-FT	516	1113	661	223	167	74	64

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 36

1992 Daily Mean Discharge
(In cubic feet per second)

MILL CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		5.8[1/]	9.3	2.4	1.6	0.8	0.6
2		6.5	8.3	2.3	1.6	0.8	0.6
3		6.9	7.3	2.3	1.5	0.8	0.6
4		8.3	6.5	2.4	1.5	0.7	0.6
5		7.3	5.8	2.4	1.5	0.7	0.6
6		6.2	5.7	2.3	1.5	0.7	0.6
7		5.8	5.4	2.3	1.5	0.7	0.6
8		6.5	5.3	2.3	1.3	0.7	0.6
9		7.8	5.3	2.3	1.2	0.7	0.6
10		28	5.3	2.2	1.2	0.7	0.6
11		18	5.3	2.2	1.2	0.6	0.6
12		16	5.0	2.9	1.2	0.6	0.6
13		13	4.7	3.0	1.2	0.6	0.6
14		9.3	4.7	3.1	1.2	0.6	0.6
15		8.8	4.4	2.9	1.2	0.6	0.6
16		14	4.4	2.8	1.1	0.6	0.6
17		25	4.4	2.5	1.1	0.6	0.6
18		20	4.1	2.2	1.1	0.6	0.6
19		18	4.1	2.0	1.0	0.5	0.6
20		16	4.1	1.8	1.0	0.5	0.6
21		14	3.8	1.6	1.0	0.5	0.6
22		13	3.5	1.5	1.0	0.5	0.6
23		11	3.3	1.4	0.9	0.5	0.6
24		9.9	3.0	1.4	0.9	0.5	0.6
25		9.3	2.8	13	0.9	0.6	0.6
26		9.3	2.8	22	0.9	0.6	0.6
27		9.3	2.8	5.1	0.8	0.6	0.6
28		9.3	2.7	3.0	0.8	0.6	0.6
29		9.3	2.5	1.7	0.8	0.6	0.6
30		9.3	2.5	1.6	0.8	0.6	0.6
31			2.4		0.8	0.6	
MEAN		11.7	4.6	3.4	1.1	0.6	0.6
AC-FT		696	281	200	70	38	36

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 37

1992 Daily Mean Discharge
(In cubic feet per second)

SOLDIER CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		8.1	3.9	0.9	3.2	0.3	0.3
2		6.9	3.6	0.9	2.7	0.3	0.3
3		6.7	3.4	0.8	1.4	0.3	0.3
4		6.9	2.9	0.8	1.3	0.3	0.3
5		5.1	2.8	0.8	1.2	0.3	0.3
6		3.8	2.6	0.8	1.1	0.3	0.3
7		3.6	2.9	0.8	1.0	0.3	0.3
8		3.9	2.5	0.8	0.9	0.3	0.3
9		6.2	2.4	0.8	0.8	0.3	0.3
10		43	2.3	0.8	0.7	0.3	0.3
11		13	2.1	0.8	0.7	0.3	0.3
12		13	2.0	0.9	0.7	0.3	0.3
13		10	1.9	0.9	0.6	0.3	0.3
14		8.1	1.8	0.9	0.6	0.3	0.3
15		7.4	1.7	0.9	0.6	0.3	0.3
16		11	1.6	0.9	0.6	0.3	0.3
17		27	1.5	0.9	0.6	0.3	0.3
18		16	1.4	0.9	0.6	0.3	0.3
19	3.6[1/]	13	1.4	0.8	0.6	0.3	0.3
20	3.5	11	1.4	0.7	0.6	0.3	0.3
21	3.5	8.7	1.3	0.6	0.5	0.3	0.3
22	3.5	7.2	1.2	0.6	0.5	0.3	0.3
23	3.8	6.2	1.2	0.6	0.5	0.3	0.3
24	4.2	5.6	1.2	1.0	0.4	0.3	0.3
25	5.1	5.4	1.2	3.9	0.4	0.3	0.3
26	6.0	5.1	1.2	12	0.4	0.3	0.3
27	5.6	4.9	1.2	9.2	0.3	0.3	0.3
28	5.6	4.9	1.1	6.3	0.3	0.3	0.3
29	6.0	4.9	1.1	5.1	0.3	0.3	0.3
30	6.1	4.6	1.0	4.0	0.3	0.3	0.3
31	11		0.9		0.3	0.3	
MEAN	5.2	9.4	1.9	2.0	0.8	0.3	0.3
AC-FT	134	558	116	119	49	18	18

[1/] No record before March 19.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 38

1992 Daily Mean Discharge
(In cubic feet per second)

PINE CREEK NEAR CEDARVILLE AT DIVERSION OF NORTH AND SOUTH CHANNELS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		1.6	0.5	0.0			
2		1.4	0.5	0.0			
3		1.3	0.4	0.0			
4		1.2	0.4	0.0			
5		1.1	0.2	0.0			
6		1.0	0.1	0.0			
7		0.9	0.0	0.0			
8		0.9	0.0	0.0			
9		0.8	0.0	0.0			
10		6.7	0.0	0.0			
11		4.2	0.0	0.0			
12		3.7	0.0	0.0			
13		2.9	0.0	0.0			
14		2.4	0.0	0.0			
15		1.8	0.0	0.0			
16		2.4	0.0	0.0			
17		6.4	0.0	0.0			
18		3.9	0.0	0.0			
19		3.2	0.0	0.0			
20	1.4[1/]	2.7	0.0	0.0			
21	1.1	2.4	0.0	0.0			
22	1.2	1.7	0.0	0.0			
23	1.3	1.4	0.0	0.0			
24	1.4	1.2	0.0	0.0			
25	1.5	1.1	0.0	10			
26	1.4	1.0	0.0	15			
27	1.5	0.8	0.0	3.1			
28	1.5	0.7	0.0	1.0			
29	1.5	0.6	0.0	0.4			
30	1.5	0.6	0.0	0.1[1/]			
31	2.9		0.0				
MEAN	1.5	2.1	0.1	1.0			
AC-FT	36	123	4	59			

[1/] No record before March 20 and no flow after June 30.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 39

1992 Daily Mean Discharge
(In cubic feet per second)

CEDAR CREEK AT CEDARVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	1.7	1.1	1.4	0.3			
2	1.8	1.2	1.3	0.3			
3	1.8	1.0	1.3	0.3			
4	1.9	1.0	1.2	0.3			
5	1.9	1.3	1.1	0.3			
6	2.2	1.0	1.1	0.3			
7	2.2	1.1	1.0	0.2			
8	2.2	2.4	1.0	0.2			
9	2.3	1.8	0.9	0.2	1/		
10	2.3	2.1	1.1	0.3	0.2		
11	2.3	2.0	0.9	0.3	0.3		
12	2.3	1.8	0.9	0.3	0.3		
13	2.3	1.7	0.9	0.4	0.2		
14	2.3	2.1	0.9	0.3	0.2		
15	2.5	3.0	0.8	0.3	0.1		
16	2.4	2.6	0.7	0.3	0.1		
17	2.3	2.7	0.8	0.3	0.1		
18	2.2	2.4	0.7	0.3	0.1		
19	2.1	2.2	0.7	0.3	0.1		
20	2.0	2.3	0.6	0.2	0.1		
21	2.0	2.1	0.6	0.2	0.1		
22	2.0	2.0	0.6	0.2	0.1		
23	1.9	1.9	0.5	0.1	0.1		
24	1.9	1.9	0.5	0.2	0.1		
25	1.9	1.8	0.4	1/	0.1		
26	2.2	1.7	0.4		0.1 2/		
27	1.8	1.6	0.4		0.0		
28	1.7	1.6	0.4		0.0		
29	1.7	1.6	0.4		0.0		
30	1.7	1.6	0.4		0.0		
31	1.6		0.3		0.0		
MEAN	2.0	1.8	0.8				
AC-FT	126	108	48				

1/ - No record June 25 through July 9.
2/ - No flow after July 26.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 40

1992 Daily Mean Discharge
(In cubic feet per second)

NORTH DEEP CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		1.6[1/]	1.1	0.3	0.2	0.1	0.1
2		1.6	1.0	0.3	0.2	0.1	0.1
3		1.6	0.9	0.3	0.2	0.1	0.1
4		1.5	0.8	0.3	0.2	0.1	0.1
5		1.3	0.7	0.3	0.2	0.1	0.1
6		1.3	0.7	0.3	0.2	0.1	0.1
7		1.2	0.7	0.3	0.2	0.1	0.1
8		1.2	0.6	0.3	0.2	0.1	0.1
9		1.7	0.6	0.3	0.2	0.1	0.1
10		5.2	0.6	0.3	0.2	0.1	0.1
11		3.4	0.6	0.3	0.2	0.1	0.1
12		3.3	0.5	0.3	0.2	0.1	0.1
13		2.8	0.5	0.3	0.2	0.1	0.1
14		2.6	0.5	0.3	0.2	0.1	0.1
15		2.4	0.5	0.3	0.2	0.1	0.1
16		4.1	0.5	0.3	0.2	0.1	0.1
17		4.2	0.4	0.3	0.2	0.1	0.1
18		3.9	0.4	0.3	0.2	0.1	0.1
19		3.2	0.4	0.3	0.2	0.1	0.1
20		2.8	0.4	0.3	0.2	0.1	0.1
21		2.4	0.4	0.3	0.2	0.1	0.1
22		2.1	0.4	0.2	0.2	0.1	0.1
23		1.9	0.4	0.2	0.2	0.1	0.1
24		1.8	0.4	0.2	0.2	0.1	0.1
25		1.5	0.3	0.9	0.1	0.1	0.1
26		1.4	0.3	1.2	0.1	0.1	0.1
27		1.3	0.3	0.4	0.1	0.1	0.1
28		1.2	0.3	0.3	0.1	0.1	0.1
29		1.2	0.3	0.3	0.1	0.1	0.1
30		1.1	0.3	0.2	0.1	0.1	0.1
31			0.3		0.1	0.1	
MEAN		2.2	0.5	0.3	0.2	0.1	0.1
AC-FT		132	32	20	11	6	6

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 41

1992 Daily Mean Discharge
(In cubic feet per second)

SOUTH DEEP CREEK BELOW NO. 2 DIVERSION

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		3.2[1/]	2.0	0.5	0.3	0.1	0.1
2		3.2	1.9	0.5	0.3	0.1	0.1
3		3.2	1.6	0.4	0.3	0.1	0.1
4		3.1	1.4	0.4	0.3	0.1	0.1
5		2.8	1.4	0.4	0.3	0.1	0.1
6		2.6	1.3	0.4	0.3	0.1	0.1
7		2.5	1.2	0.4	0.3	0.1	0.1
8		2.4	1.2	0.3	0.3	0.1	0.1
9		3.3	1.1	0.3	0.3	0.1	0.1
10		8.1	1.1	0.3	0.3	0.1	0.1
11		5.6	1.0	0.3	0.2	0.1	0.1
12		5.4	1.0	0.4	0.2	0.1	0.1
13		4.8	0.9	0.5	0.2	0.1	0.1
14		4.6	0.9	0.5	0.2	0.1	0.1
15		4.3	0.8	0.5	0.2	0.1	0.1
16		6.4	0.8	0.4	0.2	0.1	0.1
17		6.6	0.8	0.4	0.2	0.1	0.1
18		6.3	0.8	0.5	0.2	0.1	0.2
19		5.3	0.8	0.4	0.2	0.1	0.2
20		4.8	0.8	0.4	0.2	0.1	0.2
21		4.3	0.7	0.3	0.2	0.1	0.2
22		3.9	0.7	0.3	0.2	0.1	0.2
23		3.7	0.7	0.3	0.2	0.1	0.2
24		3.4	0.6	0.3	0.2	0.1	0.2
25		3.1	0.6	1.6	0.2	0.1	0.2
26		3.0	0.6	2.3	0.2	0.1	0.2
27		2.8	0.5	0.7	0.2	0.1	0.2
28		2.5	0.5	0.4	0.2	0.1	0.2
29		2.3	0.5	0.3	0.2	0.1	0.2
30		2.2	0.5	0.3	0.1	0.1	0.2
31			0.5		0.1	0.1	
MEAN		4.0	0.9	0.5	0.2	0.1	0.1
AC-FT		237	58	30	14	6	9

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER AREA

TABLE 42

1992 Daily Mean Discharge
(In cubic feet per second)

COTTONWOOD CREEK FLUME BELOW PAGE DITCH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		1.9[1/]	6.8	4.2	7.3	0.4	0.3
2		1.9	6.4	3.8	6.8	0.4	0.3
3		2.0	6.4	3.5	3.8	0.4	0.3
4		2.0	6.4	3.1	3.5	0.4	0.3
5		2.4	6.4	3.1	3.3	0.3	0.3
6		3.1	7.3	3.1	2.8	0.3	0.3
7		3.8	8.4	2.8	2.2	0.2	0.2
8		4.2	9.9	2.6	1.6	0.2	0.2
9		5.6	8.0	2.6	1.4	0.2	0.2
10		16	7.6	2.4	1.4	0.2	0.2
11		12	7.3	2.4	1.4	0.2	0.2
12		14	7.3	2.2	1.3	0.2	0.2
13		12	7.3	2.2	1.2	0.2	0.2
14		9.5	6.8	2.0	1.2	0.3	0.2
15		8.4	7.3	2.0	1.0	0.2	0.2
16		12	7.3	1.9	0.9	0.3	0.2
17		17	7.3	1.9	0.8	0.3	0.2
18		10	7.3	1.7	0.8	0.3	0.2
19		8.4	7.3	1.6	0.7	0.3	0.2
20		7.6	6.8	1.5	0.7	0.3	0.2
21		7.6	6.4	1.4	0.7	0.3	0.2
22		7.3	5.6	1.4	0.7	0.3	0.2
23		6.4	4.6	1.4	0.7	0.3	0.2
24		6.4	4.6	1.4	0.8	0.3	0.2
25		6.4	4.6	3.1	0.9	0.3	0.2
26		6.4	4.6	16	0.9	0.3	0.2
27		6.4	4.6	8.4	0.8	0.3	0.2
28		7.6	4.6	2.4	0.7	0.3	0.2
29		8.4	4.6	1.6	0.6	0.3	0.2
30		7.3	4.6	3.3	0.6	0.3	0.2
31			4.2		0.5	0.3	
MEAN		7.5	6.4	3.0	1.7	0.3	0.2
AC-FT		444	394	180	103	18	13

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 43

1992 Daily Mean Discharge
(In cubic feet per second)

OWL CREEK BELOW ALLEN-ARRECHE DITCH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		3.8[1/]	12	3.3	10	1.1	0.8
2		3.8	10	3.3	7.2	1.1	0.8
3		3.8	9.8	3.3	5.2	1.1	0.8
4		3.8	10	3.3	3.1	1.1	0.8
5		3.8	10	3.1	2.6	1.1	0.8
6		3.8	11	3.1	2.6	1.1	0.8
7		5.2	13	3.1	2.4	1.1	0.7
8		5.2	14	2.8	1.9	1.2	0.7
9		5.8	14	2.6	1.9	1.2	0.7
10		14	13	2.4	1.9	1.2	0.7
11		9.3	12	2.4	1.9	1.2	0.7
12		10	12	2.4	1.9	1.2	0.7
13		10	11	2.6	1.9	1.2	0.7
14		9.8	10	2.6	1.7	1.2	0.7
15		8.9	10	2.6	1.7	1.2	0.7
16		12	10	2.6	1.7	1.0	0.7
17		18	10	2.4	1.7	1.0	0.7
18		14	9.8	2.4	1.5	1.0	0.7
19		12	9.3	1.9	1.5	0.8	0.7
20		11	8.9	1.7	1.5	0.8	0.7
21		10	8.0	1.5	1.5	0.8	0.7
22		9.3	6.5	1.4	1.5	0.8	0.7
23		8.0	6.5	1.2	1.4	0.8	0.7
24		8.0	6.5	1.2	1.4	0.8	0.7
25		9.3	5.8	5.2	1.4	0.8	0.7
26		9.3	5.8	12	1.4	0.8	0.7
27		9.8	4.5	8.2	1.2	0.8	0.7
28		11	3.8	7.2	1.2	0.8	0.7
29		12	3.8	8.9	1.2	0.8	0.7
30		12	3.8	9.3	1.2	0.8	0.7
31			3.3		1.1	0.8	
MEAN		8.9	9.0	3.7	2.3	1.0	0.7
AC-FT		529	552	218	139	61	43

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 44

1992 Daily Mean Discharge
(In cubic feet per second)

RADER CREEK BELOW COCKRELL DIVERSION

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		2.4[1/]	5.3	2.8	4.8	0.8	0.5
2		2.8	5.3	2.8	4.7	0.8	0.5
3		2.8	5.3	2.8	4.5	0.8	0.5
4		2.8	5.3	2.4	3.2	0.6	0.5
5		3.2	5.3	2.4	2.8	0.6	0.5
6		4.7	5.6	2.4	2.4	0.6	0.5
7		4.8	6.0	2.4	2.0	0.6	0.5
8		4.8	7.2	2.0	1.8	0.6	0.5
9		4.5	7.7	2.0	1.7	0.6	0.5
10		3.2	7.2	2.0	1.7	0.6	0.4
11		2.8	6.8	2.0	1.5	0.6	0.4
12		2.8	6.4	2.0	1.5	0.6	0.4
13		2.8	6.0	2.0	1.4	0.6	0.4
14		4.3	5.6	1.8	1.4	0.6	0.4
15		6.0	5.3	1.8	1.4	0.6	0.4
16		10	5.3	1.7	1.4	0.6	0.4
17		7.2	5.3	1.7	1.4	0.5	0.4
18		6.8	5.3	1.7	1.4	0.5	0.4
19		6.4	5.2	1.7	1.4	0.5	0.4
20		5.3	5.0	1.5	1.2	0.5	0.4
21		5.2	4.8	1.5	1.2	0.5	0.4
22		5.0	4.7	1.4	1.2	0.5	0.4
23		5.0	4.5	1.4	1.0	0.5	0.4
24		4.8	4.3	1.4	1.0	0.5	0.4
25		5.0	4.3	7.2	1.0	0.5	0.4
26		5.2	4.3	32	0.8	0.5	0.4
27		5.3	4.3	13	0.8	0.5	0.4
28		6.0	3.2	8.1	0.8	0.5	0.4
29		6.8	3.2	5.3	0.8	0.5	0.4
30		6.4	2.8	5.0	0.8	0.5	0.4
31			2.8		0.8	0.5	
MEAN		4.8	5.1	3.9	1.7	0.6	0.4
AC-FT		288	317	234	107	35	26

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 45

1992 Daily Mean Discharge
(In cubic feet per second)

EAGLE CREEK NEAR EAGLEVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		3.9[1/]	9.0	4.1	6.1	1.4	0.8
2		3.9	8.0	3.9	4.6	1.4	0.8
3		3.9	7.5	3.5	3.8	1.4	0.8
4		4.1	7.5	3.3	3.5	1.4	0.8
5		4.4	8.7	3.1	3.3	1.3	0.8
6		4.8	11	2.9	3.1	1.3	0.8
7		5.0	14	2.7	3.0	1.3	0.8
8		5.0	13	2.5	2.9	1.3	0.8
9		4.4	13	2.2	2.8	1.2	0.8
10		2.5	12	2.2	2.7	1.2	0.8
11		2.9	11	2.0	2.6	1.1	0.8
12		3.3	11	2.2	2.5	1.1	0.8
13		3.9	9.8	2.3	2.4	1.1	0.8
14		4.4	8.4	2.3	2.3	1.0	0.8
15		5.6	8.1	2.2	2.2	1.0	0.8
16		6.6	8.1	2.2	2.1	1.0	0.8
17		6.3	8.1	2.0	2.1	0.9	0.8
18		5.8	8.0	2.5	2.0	0.9	0.8
19		5.8	7.5	2.3	1.8	0.9	0.8
20		5.6	7.3	2.0	1.7	0.9	0.8
21		5.6	6.6	1.7	1.7	0.8	0.8
22		5.6	5.6	1.6	1.7	0.8	0.8
23		5.4	5.2	1.6	1.6	0.8	0.7
24		5.2	5.2	1.6	1.6	0.8	0.7
25		5.6	5.2	4.4	1.6	0.8	0.7
26		6.1	5.4	16	1.6	0.8	0.7
27		6.1	5.2	10	1.6	0.8	0.7
28		7.0	5.0	7.8	1.5	0.8	0.7
29		8.7	4.8	6.6	1.5	0.8	0.7
30		9.0	4.6	6.1	1.5	0.8	0.7
31			4.1		1.4	0.8	
MEAN		5.2	8.0	3.7	2.4	1.0	0.8
AC-FT		310	492	218	148	63	46

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 46

1992 Daily Mean Discharge
(In cubic feet per second)

EMERSON CREEK ABOVE ALL DIVERSIONS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		2.3[1/]	3.9	1.8	1.6	1.0	1.0
2		2.5	3.9	1.6	1.5	1.0	1.1
3		3.0	3.9	1.6	1.5	1.0	1.1
4		3.1	3.9	1.5	1.4	1.0	1.1
5		3.1	3.9	1.4	1.4	1.0	1.1
6		3.3	3.3	1.3	1.4	1.0	1.1
7		3.3	3.3	1.3	1.3	0.9	1.1
8		3.3	3.3	1.2	1.3	0.9	1.1
9		5.2	3.3	1.2	1.2	0.9	1.1
10		5.1	3.1	1.1	1.2	0.9	1.1
11		5.0	3.1	1.1	1.2	0.9	1.1
12		5.0	3.1	1.4	1.2	0.9	1.1
13		4.3	3.0	1.5	1.1	0.9	1.1
14		4.3	3.0	1.6	1.1	0.9	1.1
15		4.3	3.0	1.6	1.1	0.9	1.1
16		4.7	3.0	1.5	1.1	0.8	1.1
17		5.2	2.8	1.5	1.1	0.8	1.1
18		5.0	2.8	1.5	1.1	0.8	1.1
19		4.9	2.8	1.5	1.1	0.8	1.1
20		4.9	2.5	1.5	1.0	0.8	1.1
21		4.8	2.5	1.5	1.0	0.8	1.1
22		4.8	2.3	1.5	1.0	0.9	1.1
23		4.7	2.1	1.6	1.0	0.9	1.1
24		4.7	2.1	1.6	1.0	0.9	1.1
25		4.7	1.9	3.0	1.0	0.9	1.1
26		4.3	2.1	5.1	1.0	0.9	1.1
27		4.3	1.9	2.1	1.0	1.0	1.1
28		4.3	1.8	1.6	1.0	1.0	1.1
29		3.9	1.8	1.6	1.0	1.0	1.1
30		3.9	1.8	1.6	1.0	1.0	1.1
31			1.8		1.0	1.0	
MEAN		4.2	2.8	1.7	1.2	0.9	1.1
AC-FT		250	173	99	71	56	65

[1/] No record before April 1.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 47

1992 Daily Mean Discharge
(In cubic feet per second)

PINE CREEK NEAR ALTURAS

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	8.9	9.7	13	11	9.6	6.2	5.3
2	8.8	9.9	13	11	8.9	6.2	5.4
3	8.9	10	13	11	8.5	6.1	5.5
4	8.7	11	13	10	8.3	6.1	5.6
5	8.8	10	14	10	8.2	6.1	5.5
6	9.5	9.6	14	10	8.1	6.1	5.5
7	13	9.4	14	10	8.1	6.0	5.4
8	12	9.5	14	10	8.1	6.0	5.4
9	11	9.7	14	9.9	8.0	5.8	5.4
10	9.9	12	14	9.9	7.8	5.8	5.4
11	9.7	11	14	9.7	8.1	5.8	5.3
12	9.6	11	13	10	8.2	5.8	5.4
13	9.6	11	13	10	7.9	6.0	5.4
14	9.6	10	13	10	7.9	5.7	5.4
15	9.5	10	13	10	7.8	5.8	5.4
16	9.8	11	13	10	7.8	5.7	5.4
17	9.9	12	13	10	7.9	5.6	5.4
18	9.4	11	13	10	7.6	5.5	5.4
19	9.5	11	13	9.9	7.5	5.5	5.3
20	9.4	11	13	9.6	7.5	5.5	5.3
21	9.4	11	13	9.5	7.8	5.5	5.3
22	9.3	11	12	9.2	7.6	5.5	5.4
23	9.1	12	12	9.1	7.5	5.5	5.4
24	9.1	12	12	8.9	7.4	5.4	5.4
25	9.2	12	12	11	7.2	5.4	5.5
26	9.2	13	12	11	7.1	5.4	5.4
27	9.4	13	12	9.1	6.8	5.4	5.4
28	9.4	13	11	9.2	6.7	5.3	5.3
29	9.4	13	11	10	6.7	5.3	5.3
30	9.5	13	11	11	6.5	5.3	5.2
31	9.7		11		6.4	5.4	
MEAN	9.6	11.1	12.8	10.0	7.7	5.7	5.4
AC-FT	591	660	785	595	475	350	321

SUSAN RIVER WATERMASTER SERVICE AREA

The Susan River service area is in southern Lassen County near Susanville. The main area of water use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a stretch of about 25 miles. The valley floor is at an elevation of about 4,000 feet. Water comes from three stream systems: Susan River, Baxter Creek, Parker Creek, and their respective tributaries.

The Susan River originates in the Cascade Range just east of Lassen National Park at an elevation of about 7,900 feet. It runs east from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

The river has four major tributaries: Piute Creek, entering from the north at Susanville; Gold Run and Lassen creeks, entering from the south between Susanville and Johnstonville; and Willow Creek, entering from the north above Standish. Gold Run and Lassen creeks rise on the north slope of Diamond Mountain at an elevation of about 7,600 feet. The watersheds of Piute and Willow creeks are on the south slopes of Round Valley Mountain at lower elevations.

The Susan River divides into three channels a short distance below its confluence with Willow Creek. The channels are Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Hartson Slough and Whitehead Slough divert from Dill Slough on its south bank further downstream.

The Baxter Creek stream system is in Honey Lake Valley on the east side of the Sierra Nevada, about 10 miles southeast of Susanville. The main creeks in the system are Baxter Creek, which rises on the west side of the basin and flows east, and Elysian, Sloss, and Bankhead creeks, tributaries of Baxter Creek from the south.

Parker Creek is also in Honey Lake Valley on the east slope of the Sierra Nevada, about 15 miles southeast of Susanville. It rises on the east side of Diamond Mountain and flows east for about 5 miles into Honey Lake.

Basis of Service

The water of Susan River and its tributaries is distributed according to the water rights defined in Decree No. 4573, Lassen County Superior Court, entered on April 18, 1940. Schedule 3 of the decree defines the rights to the use of water from Willow Creek in Willow Creek Valley, Lower Willow Creek, and the Susan River delta below the Colony Dam. Schedule 4 of the decree defines the rights to the use of water from Gold Run, Piute, Hills, Holtzclaw, and Lassen creeks above their confluence with the Susan River. Schedules 5 and 6 of the decree define the rights to the use of water from the Susan River, exclusive of its tributaries. The decree establishes three priority classes each on Susan River and Gold Run Creek, two on Willow Creek, and one each on Piute and Hills creeks.

The water of Baxter Creek and its tributaries is distributed according to the water rights defined in the statutory adjudication as set forth in Decree No. 8174, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Sloss and Bankhead creeks, and Schedule 4 defines the rights to the use of water from Baxter and Elesian creeks. The Baxter Creek rights are divided into five priority classes.

The water of Parker Creek and its tributaries is distributed according to the water rights defined by a statutory adjudication as set forth in Decree No. 8175, Lassen County Superior Court, dated December 15, 1955. Schedule 3 of the decree defines the rights to the use of water from Parker Creek, with four priority classes.

The Susan River watermaster service area was created by order of the Division of Water Resources on November 10, 1941. The Baxter and Parker creek stream systems were added to the Susan River service area on February 16, 1956.

Water Supply

Water in the Susan River service area comes from two major sources: snowmelt runoff and springs. Snowpack in the Willow Creek Valley and Piute Creek watersheds, which contain more than half the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this part of the stream system are then almost entirely dependent on the flow of springs that are relatively constant throughout the year.

Under average flow conditions, Lassen, Gold Run, Baxter, and Parker creeks and the Susan River above Susanville are sustained by snowmelt runoff until early June. The flow from perennial springs in this portion of the system is comparatively small.

The Lassen Irrigation Company stores supplemental water in Hog Flat and McCoy Flat reservoirs, on the headwaters of the Susan River. This stored water is released into the Susan River Channel and joins the natural flow, usually during June and July. It is then rediverted into Lake Leavitt for further distribution by the irrigation company.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 48 through 57.

Method of Distribution

A major portion of the irrigation in the Susan River service area is done by flooding. Water is supplied to the area from the Susan River, tributaries to the river, and other minor streams. The distribution of water is provided by a system of diversion dams, canals and ditches. Included in the operation of the service area are three reservoirs owned and operated by the Lassen Irrigation Company which are McCoy Flat Reservoir, Hog Flat Reservoir, and Lake Leavitt.

1992 Distribution

This is the 51st annual report on watermaster service in the Susan River watermaster service area and covers the period of distribution beginning March 1 and continuing until November 1. Virgil D. Buechler, Water Resources Engineering Associate, was the watermaster.

Streamflow conditions for the 1992 season were very severe. The 1992 runoff at the USGS gaging station, "Susan River at Susanville," was 12 percent of normal.

Parker Creek

First priority water rights were served through April 13 and then reduced to a spring-fed trickle for the upper users.

Baxter Creek

A minimum flow to start the season on March 1 of 0.1 cfs gradually increased to 4.5 cfs above the Boys Camp April 13. It was dry at the Long Ditch diverson the entire season.

Hills Creek

The water supply in Hills Creek was insufficient to reach Emerson Lake.

Gold Run Creek

At the beginning of the season the streamflow only provided 12 percent of the water rights. On April 17 the available flow reached its maximum for the season at 16 cfs or 100 percent of the water rights. The streamflow then gradually decreased to zero on July 20 and remained dry until August 1 when the creek started flowing at 0.1 cfs.

Piute Creek

The spring-fed water supply was sufficient to satisfy all allotments through April. By May 1 the creek was dry at the Wetherlow Street Bridge and remained dry until September 1.

Susan River

The flow in the Susan River on March 1 was 32 cfs. It peaked at 74 cfs on April 15 and decreased to 4.5 cfs (first priority water) by May 15. The minimum flow of the year was 0.5 on September 30.

Lassen Irrigation Company Reservoirs

The inflow to McCoy Flat Reservoir was measured at 970 acre-feet for the period March 27 to May 6. The releases totaled 516 acre-feet from March 30 through April 24 when it dried up. Hog Flat Reservoir released a total of 293 acre-feet during the period April 14 through April 26 when it dried up.

Lower Susan River Below the Confluence of Willow Creek

The total flow in the Lower Susan River below Willow Creek exceeded 10 cfs until May 3 and then gradually receded to 3.8 cfs by August 25. The flow to the lower users averaged a little over 4 cfs through July, August and September when it gradually increased to an average of 8.4 cfs through October.

Lassen Holtzslaw Creek

Lassen Creek had a flow of two cfs on April 13. The creek flow provided only stock water for a short period this summer.

Willow Creek

The flow in Willow Creek above Murres Diversion was measured at 8.9 cfs May 15 and remained steady most of the season. The Neuhaus-Jacob ditch had a continuous flow of 2.1 cfs during the period from April 1 to October 31.

The lower Schedule 3 users received their percentage of second priority water for the summer.

Flow of Mapes Big Springs. To determine the flow of Mapes Big Springs, a gaging station with a 5-foot parshall flume was operated in 1992 by DWR. This station, "Willow Creek (above Mapes Big Springs) near Susanville," is above Mapes Big Springs and is located 1.7 miles above the USGS gaging station "Willow Creek near Susanville." The difference in the mean daily cubic feet per second of these two stations is the flow of Mapes Big Springs in this 1.7-mile reach.

The flow at Willow Creek near the Susanville USGS gaging station and Willow Creek (above Mapes Big Springs) near Susanville is presented in Tables 52 and 53.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 48

1992 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER AT SUSANVILLE[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	32	54	12	3.5	2.2	0.6	2.1
2	32	54	11	3.3	1.9	0.5	2.6
3	32	53	9.7	3.4	1.7	1.5	2.2
4	34	54	9.1	3.2	1.9	1.6	1.3
5	35	51	7.8	3.0	1.8	2.0	1.2
6	41	44	7.6	3.2	1.6	1.6	1.0
7	36	44	7.2	3.1	1.5	2.3	1.2
8	32	31	7.5	2.7	1.5	1.9	1.4
9	29	24	7.1	2.7	1.8	1.4	1.4
10	27	27	5.7	2.2	1.7	1.5	1.0
11	26	29	5.6	1.2	0.4	1.4	1.5
12	27	35	4.8	1.3	0.5	1.7	1.3
13	27	61	4.9	1.6	0.8	1.5	2.0
14	28	59	5.0	1.8	0.8	0.9	1.9
15	28	74	4.5	2.5	0.7	1.9	1.7
16	28	66	4.4	2.9	1.1	0.8	1.8
17	28	65	5.1	3.4	1.5	1.2	2.6
18	26	59	4.7	1.9	2.5	0.6	1.7
19	24	60	3.5	2.0	1.6	0.3	0.9
20	23	55	3.8	1.7	1.7	1.1	1.3
21	22	49	4.9	1.7	1.5	1.9	2.2
22	23	42	4.3	1.0	1.7	1.7	2.1
23	23	38	2.7	0.6	2.0	1.0	3.0
24	23	34	2.3	0.8	1.4	0.7	2.7
25	23	25	2.4	1.8	1.4	0.9	1.3
26	24	21	3.5	1.1	1.4	0.9	0.6
27	25	19	2.5	0.9	0.8	0.4	1.4
28	23	17	1.9	1.4	0.7	0.8	1.1
29	19	15	1.7	2.1	0.6	1.4	0.8
30	21	11	2.3	1.7	0.6	2.3	0.5
31	31		3.1		1.3	2.4	
MEAN	27.5	42.4	5.2	2.1	1.4	1.3	1.6
AC-FT	1690	2520	323	126	85	81	95

[1/] USGS Station

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 49

1992 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER ABOVE DIVERSION NO. 44

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	1/						
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
MEAN							
AC-FT							

1/ No record March 1 through April 30 and no flow May 1 through September 30.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 50

1992 Daily Mean Discharge
(In cubic feet per second)

SUSAN RIVER ABOVE CONFLUENCE OF WILLOW CREEK

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	0.5	0.7	0.0				
2	1.0	0.6	0.0				
3	1.0	0.5	0.0				
4	1.0	0.5	0.2				
5	1.0	0.5	0.2				
6	1.0	1.0	0.2				
7	1.5	1.2	0.2				
8	1.2	1.0	0.2				
9	1.0	1.0	0.1[1/]				
10	1.0	1.0	0.0				
11	1.0	1.0	0.0				
12	0.7	1.0	0.0				
13	0.5	0.8	0.0				
14	0.3	0.8	0.0				
15	0.3	0.9	0.0				
16	0.3	0.9	0.0				
17	0.3	1.0	0.0				
18	0.3	1.0	0.0				
19	0.3	1.0	0.0				
20	0.3	1.0	0.0				
21	0.3	1.0	0.0				
22	0.3	0.3	0.0				
23	0.3	0.5	0.0				
24	0.3	0.5	0.0				
25	0.3	0.4	0.0				
26	0.3	0.3	0.0				
27	0.3	0.0	0.0				
28	0.3	0.0	0.0				
29	0.5	0.0	0.0				
30	0.5	0.0	0.0				
31	0.8		0.0				
MEAN	0.6	0.7	0.0				
AC-FT	38	40	2				

1/ No flow after May 9 through September 30.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 51

1992 Daily Mean Discharge
(In cubic feet per second)

GOLD RUN CREEK NEAR SUSANVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	2.0	3.4	4.0	1.0	1.0	0.1	
2	2.0	3.9	2.6	1.0	1.0	0.1	
3	2.0	4.7	2.6	1.0	1.0	0.1[1/]	
4	1.8	4.7	2.6	1.0	1.0		
5	1.8	4.7	3.8	1.0	1.0		
6	1.6	4.7	2.8	1.0	1.0		
7	1.6	3.9	2.0	1.0	1.0		
8	1.4	3.9	2.0	1.0	0.9		
9	1.4	3.9	2.0	1.0	0.9		
10	1.2	5.0	2.0	1.0	0.8		
11	1.2	5.0	2.2	1.0	0.8		
12	1.4	9.0	2.5	1.0	0.7		
13	1.6	10	2.5	0.7	0.7		
14	1.6	10	2.5	0.7	0.6		
15	1.8	10	2.5	0.7	0.5		
16	2.0	10	2.5	0.7	0.4		
17	2.0	16	2.5	0.7	0.3		
18	2.0	14	2.5	0.7	0.2		
19	2.0	12	2.5	0.7	0.1		
20	2.0	11	2.5	0.7	0.0		
21	2.0	11	2.5	1.0	0.0		
22	2.0	11	2.5	1.0	0.0		
23	2.0	11	2.5	1.0	0.0		
24	2.0	10	2.5	1.0	0.0		
25	2.2	8.0	2.5	1.0	0.0		
26	2.6	6.8	2.5	1.0	0.0		
27	2.8	6.4	2.5	0.8	0.0		
28	2.8	6.0	2.0	0.7	0.0		
29	3.0	6.0	1.8	0.7	0.0		
30	3.0	6.0	1.6	1.5	0.0		
31	3.2		1.4		0.0		
MEAN	1.9	7.7	2.4	0.9	0.5		
AC-FT	123	460	149	53	28		

[1/] No record after August 3 through September 30.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 52

1992 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK NEAR SUSANVILLE[1/]

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	23	16	7.3	3.4	3.7	2.0	2.5
2	22	16	7.0	3.3	3.6	2.1	2.3
3	16	15	7.0	3.3	3.6	2.1	2.1
4	15	13	6.8	3.4	3.4	2.0	1.9
5	15	10	6.6	3.4	3.3	2.0	2.1
6	16	10	6.3	3.3	3.2	2.0	2.4
7	17	9.6	6.2	3.3	3.1	2.0	2.3
8	17	9.2	6.1	3.2	3.0	1.9	2.1
9	15	9.3	6.0	3.4	2.8	1.8	2.0
10	14	10	6.0	3.6	2.7	1.5	2.0
11	15	11	6.4	3.6	2.6	1.4	2.0
12	15	12	6.4	3.6	2.5	1.6	1.8
13	16	14	6.1	3.6	2.5	2.1	1.6
14	16	14	5.6	3.7	2.5	2.0	1.6
15	16	13	5.4	3.9	2.5	1.9	1.5
16	16	14	5.2	4.0	2.5	1.9	1.4
17	16	13	5.0	4.1	2.6	2.1	1.4
18	16	13	4.9	4.6	2.7	2.0	1.5
19	16	11	4.8	4.8	2.6	1.9	1.7
20	16	11	4.7	4.7	2.7	1.8	1.9
21	16	11	4.5	4.4	2.7	1.7	2.0
22	17	11	4.4	4.2	2.6	1.6	2.1
23	18	9.7	4.3	3.9	2.5	1.6	2.3
24	18	9.2	4.3	3.9	2.4	1.7	2.5
25	18	9.1	4.7	3.9	2.3	1.6	2.5
26	18	9.5	3.9	3.8	2.3	1.7	2.6
27	18	9.5	3.7	3.7	2.3	1.7	2.8
28	18	8.9	3.6	3.8	2.2	1.9	2.9
29	17	8.1	3.5	3.7	2.2	1.9	3.0
30	16	7.6	3.5	3.7	2.2	2.1	3.0
31	16		3.5		2.0	2.5	
MEAN	16.7	11.3	5.3	3.8	2.7	1.9	2.1
AC-FT	1030	670	325	225	166	115	127

1/ USGS Station.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 53

1992 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK (ABOVE MAPES BIG SPRINGS) NEAR SUSANVILLE

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1		20	8.6	0.0			0.2
2		20	8.6	0.0			0.2
3		19	8.6	0.0			0.2
4		16	7.9	0.0			0.2
5	14[1]	8.6	5.9	0.0			0.2
6	21	9.0	5.1	0.0			0.2
7	22	8.6	4.6	0.0			0.2
8	18	9.5	4.0	0.1			0.2
9	17	7.3	4.0	0.2			0.2
10	16	9.5	3.0	0.3			0.3
11	18	11	3.0	0.4			0.3
12	19	13	3.0	0.5			0.3
13	20	16	3.0	0.6			0.3
14	19	16	3.0	0.7			0.3
15	20	15	3.0	0.8			0.4
16	20	16	2.7	1.0			0.2
17	21	16	2.4	1.2			0.2
18	21	14	2.1	1.0			0.4
19	21	13	1.8	0.5[2]			0.4
20	21	13	1.5				0.4
21	21	13	1.2				0.4
22	23	12	0.9				0.4
23	24	11	0.6				0.4
24	25	9.8	0.3				0.3
25	25	11	0.0			0.0[2]	0.3
26	25	12	0.0			0.1	0.4
27	25	12	0.0			0.1	0.4
28	24	12	0.0			0.1	0.6
29	23	9.5	0.0			0.1	0.9
30	21	8.9	0.0			0.1	0.9
31	21		0.0			0.2	
MEAN	20.9	12.7	2.9	0.2	0.0	0.0	0.4
AC-FT	1120	757	176	14	0	1	21

[1] No record before March 5.
[2] No flow June 20 through August 25.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 54

1992 Daily Mean Discharge
(In cubic feet per second)

WILLOW CREEK AT THE CONFLUENCE OF THE SUSAN RIVER

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	28	21	15	4.3	7.0	4.6	4.6
2	29	21	14	3.8	7.3	4.6	5.1
3	29	21	12	3.8	7.0	4.6	5.1
4	28	21	10	3.8	6.7	4.6	5.9
5	25	19	10	4.3	6.7	4.6	5.9
6	20	15	10	4.6	6.2	4.6	5.9
7	25	14	10	5.1	4.6	4.6	5.9
8	25	14	10	5.1	4.2	4.6	5.9
9	24	14	10	5.7	4.6	4.6	4.3
10	23	14	10	5.7	4.6	4.6	4.3
11	22	16	10	5.7	4.6	4.6	3.8
12	23	17	10	5.7	4.6	4.3	3.4
13	23	18	10	5.1	4.6	4.6	3.8
14	25	19	9.2	5.7	4.6	4.6	3.8
15	25	19	6.5	7.0	4.6	5.9	3.8
16	25	19	6.5	7.3	4.6	4.3	3.8
17	25	19	7.9	7.3	4.5	4.6	3.8
18	25	19	15	7.3	4.1	5.1	3.8
19	26	18	14	7.9	4.1	5.1	3.8
20	26	17	13	6.7	4.1	4.3	3.8
21	25	16	11	6.2	4.1	4.1	4.3
22	26	16	9.8	5.9	4.1	4.1	4.6
23	27	16	6.7	5.9	4.1	4.1	4.6
24	27	16	5.9	5.9	4.1	4.1	4.6
25	27	15	5.1	5.9	4.1	3.8	4.6
26	26	15	4.5	5.9	4.1	3.8	5.7
27	26	14	4.3	5.9	4.6	3.8	5.1
28	25	14	4.3	6.2	4.6	4.3	4.9
29	24	14	4.3	6.7	4.6	4.3	4.9
30	23	14	4.3	6.7	4.6	4.6	5.9
31	22		4.3		4.6	4.6	
MEAN	25.1	16.8	9.0	5.8	4.9	4.5	4.7
AC-FT	1550	1000	551	343	300	276	278

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 55

1992 Daily Mean Discharge
(In cubic feet per second)

DILL SLOUGH NEAR STANDISH

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	6.7	4.3	3.3	1.1	2.2		
2	6.7	4.3	2.9	1.1	2.2		
3	8.8	4.3	2.6	1.1	2.2		
4	8.0	4.1	2.6	1.1	2.2		
5	8.0	4.1	2.6	1.1	2.2		
6	7.7	4.1	2.4	1.1	2.2		
7	7.7	4.1	2.4	1.1	1.7		
8	7.7	4.1	2.4	1.1	1.7		
9	7.7	4.3	2.4	1.1	1.4		
10	7.7	4.3	2.4	1.1	1.4		
11	7.4	4.3	2.0	1.1	1.1		
12	7.2	4.3	1.7	1.1	1.1		
13	6.9	4.4	1.5	1.1	1.1		
14	7.2	4.9	1.2	1.5	1.1		
15	7.2	4.5	1.2	1.5	1.1		
16	7.4	4.5	2.0	1.5	1.1		
17	7.4	4.6	2.9	1.5	1.1		
18	7.2	4.6	2.9	1.5	0.6		
19	6.9	4.6	4.6	1.5	0.4		
20	6.9	4.6	5.2	1.5	0.0		
21	6.7	4.4	4.6	1.5	0.0		
22	6.7	4.2	3.9	1.5	0.0		
23	7.2	4.1	3.1	1.5	1.1		
24	7.2	4.0	1.9	1.5	1.1		
25	6.9	4.0	1.1	1.5	1.1		
26	6.9	4.0	1.1	1.5	0.4		
27	6.7	3.9	1.1	1.9	0.0[1/]		
28	6.7	3.9	1.1	1.9			
29	6.7	3.9	1.1	1.9			
30	5.5	3.7	1.1	2.2			
31	4.3		1.1				
MEAN	7.1	4.2	2.3	1.5	1.0		
AC-FT	436	251	142	87	63		

1/ No flow from July 27 through September 30.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 56

1992 Daily Mean Discharge
(In cubic feet per second)

OPERATION OF MCCOY AND HOG FLAT RESERVOIRS

	McCoy Flat Reservoir Inflow from Susan River			McCoy Flat Reservoir Release to Susan River		Hog Flat Reservoir Releases to Susan River
DAY	MARCH	APRIL	MAY	MARCH	APRIL	APRIL
1		35	6.2		22	
2		32	3.0		22	
3		30	2.0		21	
4		20	2.0		21	
5		15	1.0		21	
6		10	1.0[1]		18	
7		7.3			5.4	
8		5.9			1.0	
9		3.6			0.5	
10		6.7			0.5	
11		7.6			0.5	
12		28			8.4	
13		31			19	
14		16			19	22[2]
15		12			8.4	20
16		9.5			5.4	18
17		15			9.0	17
18		20			11	16
19		15			7.0	15
20		11			5.4	13
21		11			3.2	9.5
22		8.9			0.5	7.0
23		6.2			0.5	5.0
24		4.6			0.5[2]	3.0
25		3.0				1.5
26		3.6				0.2[2]
27	3.6[1]	3.2				
28	17	3.4				
29	22	3.8				
30	20	6.7		8.5[2]		
31	27			22		
MEAN		12.8		15.2	7.7	11.3
AC-FT	180	760	30	60	456	293

[1] No record before March 27 and no flow after May 6.
[2] No other releases before or after this period.

SUSAN RIVER WATERMASTER SERVICE AREA

TABLE 57

1992 Daily Mean Discharge
(In cubic feet per second)

A AND B CANAL ABOVE LAKE LEAVITT

DAY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER
1	24[1/]						
2	0.0						
3	0.0						
4	0.0						
5	0.0						
6	0.0						
7	0.0						
8	0.0						
9	0.0						
10	0.0						
11	0.0						
12	0.0						
13	0.0						
14	0.0						
15	0.0						
16	0.0						
17	0.0						
18	0.0						
19	0.0						
20	0.0						
21	0.0						
22	0.0						
23	0.0						
24	0.0						
25	0.0						
26	0.0						
27	0.0						
28	3.6[1/]						
29							
30							
31							
MEAN	1.0						
AC-FT	55						

[1/] No flow other than March 1 and March 28.